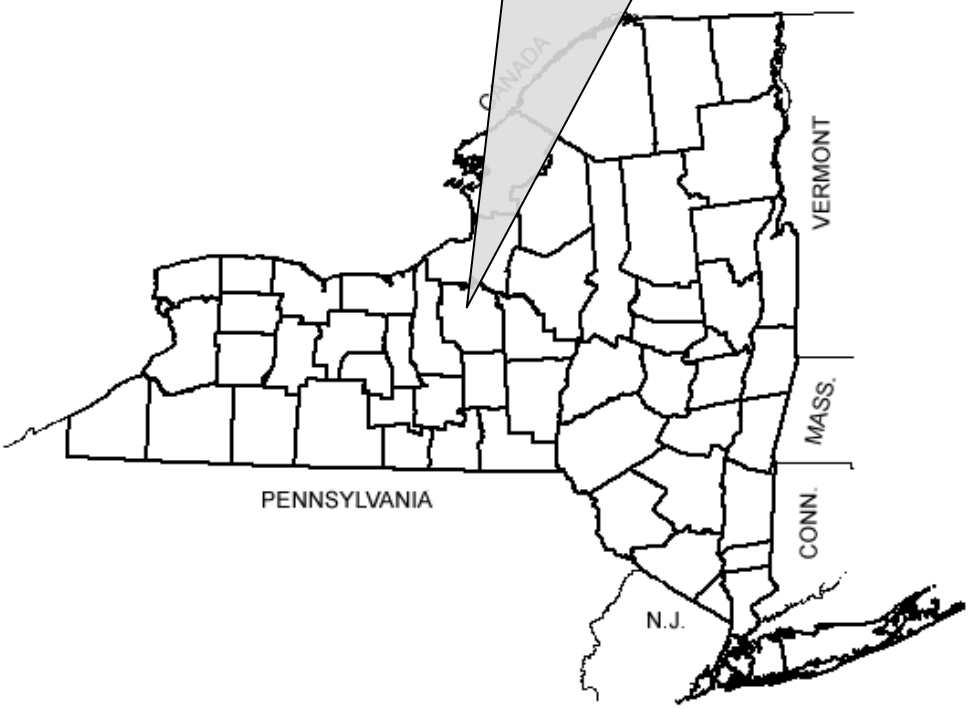
TRANSPORTATION

PROJECT SCOPING REPORT

May 2011

P.I.N. 328717
Highway Safety Project
Route 370 (Onondaga Lake Parkway),
Old Liverpool Rd. to I81
Town of Salina, Village of Liverpool
Onondaga County



PROJECT REPORT

U.S. Department of Transportation Federal Highway Administration

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
ANDREW M. CUOMO, Governor JOAN MCDONALD, Commissioner

The following table of approximate conversion factors provides the relationship between metric and U.S. Customary units for some of the more frequently used units in highway design. The table allows one to calculate the U.S. Customary Unit by multiplying the corresponding Metric Unit by the given factor.

	Metric Unit	x	Factor	=	U.S. Customary Unit
Length	kilometer (km)	x	0.621	=	miles (mi)
	meter (m)	x	3.281	=	feet (ft.)
Area	hectare (ha)	x	2.471	=	acres (a)
	square meter (m^2)	x	1.196	=	square yards (sy)
	square meter (m^2)	x	10.764	=	square feet (sf)
Volume	cubic meter (m^3)	x	1.308	=	cubic yards (cy)
	cubic meter (m^3)	x	35.315	=	cubic feet (cf)
Speed	kilometer per hour (km/h)	x	0.621	=	miles per hour (mph)
	meter per second (m/s)	x	3.281	=	feet per second (ft/s)

PROJECT APPROVAL SHEET

PIN 328717

Route 370 (Onondaga Lake Parkway) Safety Improvements

Old Liverpool Road to I-81

Town of Salina and Village of Liverpool, Onondaga County

(Pursuant to SAFETEA-LU Matrix)

Milestones	**Signatures**	**Dates**
A. IPP Approval:	The project is ready to be added to the Regional Capital Program and project scoping can begin. The IPP was approved by A.S. Vetter Regional Planning & Program Manager	9/17/03
B. Recommendation for Scope Approval	The project cost and schedule are consistent with the Regional Capital Program. Acting Regional Planning & Program Manager	
	Regional Traffic Engineer	
	Regional Design Engineer	
C. Scope Approval:	The project cost and schedule are consistent with the Regional Capital Program. Regional Director	

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LIST OF ATTACHMENTS

PROJECT SCOPING REPORT

1.1. Introduction

This report was prepared in accordance with the NYSDOT Project Development Manual, 17 NYCRR Part 15 and 23 CFR 771.

1.2. Purpose and Need

1.2.1. General Information

See Attachment 1 for maps and Attachment 2 for photographs.

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(1) Route number and name: NY Route 370 - Onondaga Lake Parkway

(2) SH number and official highway description: SH 5274: Phoenix - Syracuse

(3) BIN and feature crossed: BIN 7027400. CSX Railroad over Route 370

(4) City/Village/Township: Village of Liverpool, Town of Salina

(5) County: Onondaga County

(6) Legislative districts: Congressional: 25
State Senate: 50
Assembly: 119

(7) Urban/Rural: ☒ Large Urban: ☐ Small Urban ☐ Rural
☒ SMTC
☐ ITCTC

(8) Length: 1.9 centerline miles, 7.6 lane-miles.

(9) Reference markers and milepoints. From: RM 370 3301 1155 to 370 3301 1174 and MP 370 33010 15.55 to MP 370 33010 17.45.

(10) General Information: The highway has four 11 ft lanes, shoulders varying from 4-6 ft and a 4 ft striped median. There are no turn lanes or parking lanes but several driveways (both defined and undefined) to parking areas on both sides. For most of the parkway, there is a posted 55 mph speed limit, with the posting decreasing to 45 mph from November 1 to April 1. A 30 mph speed limit is in place within the Village of Liverpool and continues approximately 1,200 ft east of the park entrance (the westernmost 0.4 miles of the project). The highway profile is mostly flat with only gentle grades and some curves. See section 1.3 for more information on the highway geometry and its deficiencies.

(11) Speeds: Department speed studies have shown that 85th percentile speeds are 62 mph while the 55 mph posting is in effect and 55 mph while the 45 mph posting is in effect.

(12) Functional Classification: Urban Principal Arterial. Route 370 is not on the National Highway System.

(13) The project is located within the Syracuse Metropolitan Transportation Council Metropolitan Planning Organization (MPO) urban area. This project does not appear on the approved 2011-2015 MPO Transportation Improvement Program.

(14) Route 370 (Onondaga Lake Parkway) is not designated as a Qualifying (National Network) and Access Highway. A Qualifying highway, Interstate 81, is within one mile of the project.

(15) Ownership and Maintenance Jurisdiction: Route 370 is owned and maintained by New York State Department of Transportation.

(16) Setting Info: Route 370 begins at US Route 11 (Wolf Street) in the City of Syracuse and proceeds westerly ending at Route 104, south of the Village of Red Creek in Wayne County. The section of Route 370, as defined in the project, passes through Onondaga Lake County Park and primarily serves commuter and recreational traffic, as well as bicycles and pedestrian traffic. The latter groups' activity is concentrated mainly in the north, near the park entrance but there is bicycle use on the full length of the parkway. To the northwest is the Village of Liverpool and to the southeast, the parkway connects with I-81 and the City of Syracuse. During the year, the parkway is occasionally closed for park events.

(17) Any other description information which is pertinent:

- Most land beyond the pavement edge is County-owned parkland. Onondaga County Park and Griffin Field (located south of the Old Liverpool Road and Parkway intersection) are National Register for Historic Places-eligible. Both the park and parkway are Federal Sec. 106, Sec. 4(f) and Sec. 6(f) resources.
- There are some private businesses with driveway access at the western project limit, opposite the park. In addition, there is a small National Grid facility at the eastern project limit.
- There is a recreated, interpretive fort called Sainte Marie Among the Iroquois and an entrance to Onondaga Lake Park located on Route 370 within the project's limits. There are also driveways to commercial businesses at the west end of the project, west of the park entrance.
- Tractor trailers are excluded from the parkway, as per Title 15, Chapter VIII, Subchapter A, Part 6031, Sections 6031.09(a) and 6031.31(a) of the New York Code of Rules and Regulations.

1.2.2. Why is the Project Needed?

This section of Route 370 experiences a high number of cross-over and run-off-road crashes, especially during adverse weather conditions. The injury rate is higher than that of comparable state highways and vehicles speeds commonly exceed 10 mph over the posted limit. Previous attempts to address the problem include a reduced speed limit during winter months, enhanced snow/ice control and a striped median. These measures have had limited success in reducing accidents.

There are also issues relating to the CSX Railroad bridge. These involve narrow horizontal and low vertical clearances at the bridge. These result in a pattern of vehicles hitting the abutments and vehicles exceeding the available vertical clearance hitting the bridge.

See Attachment 3 for complete accident analysis and discussion.

1.2.3. What are the Objectives of the Project?

Correct safety deficiencies using cost-effective accident reduction counter-measures to reduce all accidents by 25% and severe accidents by 25%.

1.3. What Alternatives Are Being Considered?

The improvement alternatives focus on addressing the linear needs associated with the highway and the needs at the CSX bridge. Some addressing the former may affect the latter and are noted as necessary. In addition to long term improvements to be performed by this project, near-term safety enhancements will be implemented. The safety enhancements are actions to be taken separate from this project; in an effort to enhance safety to the traveling public until this project occurs. If a safety enhancement that is implemented is no longer needed or appropriate after the long term improvements are implemented, the safety enhancement will be removed. Details on the enhancements considered are presented in Attachment 5.

Alternatives #1-6 below are those considered to address the highway's linear safety needs.

Alternative #1 - The No Build "Null" Alternative. The Null Alternative provides for only the continued maintenance with an increasing amount of maintenance time and money required to keep the facility open to traffic. This does not address the safety needs and thus, this alternative is considered unfeasible.

Alternative #2 – Median Barrier Installation. This alternative would install a median barrier system. The type of barrier and its exact limits would be determined during the design phase. The barrier would need to be rigid enough to minimize deflection so it does not encroach into the opposing travel lane after impacts. Any median barrier would restrict left turns into and out of park facilities, complicate snowplowing efforts and create a visual impact. Depending on the type chosen, it may require repairs after impacts as well. This alternative addresses the crossover accident pattern. It is considered feasible.

Alternative #3 – Divided Highway Configuration. This alternative would reconstruct the road as a divided highway with a grassy median. The median width would be determined during project design. Based on existing traffic volumes and speeds, it is estimated the median would have to be at minimum 36 ft wide for most of the highway length. This alternative addresses the crossover accident pattern, provides space to accommodate turning lanes at the park entrance and allows for continued use of the highway for park events. However, construction would require very significant right of way acquisitions and subsequent mitigation measures. Many park resources, such as the Butterfly Garden and wedding bridge, would have to be removed or relocated. This alternative also requires replacement of the CSX Bridge. The new bridge would be significantly longer than the current bridge due to the widened highway and higher to eliminate the low clearance. This in turn would increase the required railroad reconstruction. Due to the impacts to the park and railroad, and the high construction and right of way costs, this alternative is considered unfeasible.

Alternative #4 – Three Lane Configuration with Reversible Center Lane. This alternative would create a three lane highway with a reversible center lane. The center lane would be configured to suit demand (eastbound during morning peaks and westbound during evening peaks) to ensure sufficient capacity. Maintaining a

reversible lane would require either overhead signals to direct vehicles to the appropriate lanes or a moveable barrier. The former option would not address the crossover accident pattern and may elevate safety risks overall. Thus, it is considered unfeasible. The moveable barrier would be labor restrictive to operate and maintain. The apparatus to shift the barrier may not fit under the bridge. The movable barrier would have all the impacts mentioned for Alternative #2 and also cost more, while only providing the advantage of wider shoulders. This alternative is not cost effective and is considered unfeasible.

Alternative #5 – Two Lane Configuration. This alternative would convert the highway to a two-lane highway posted for 45 mph or less. Traffic calming measures would be used to create a park-like thoroughfare and slow traffic down. A pedestrian/bicyclist trail can be accommodated on the surplus pavement width and wider shoulders and ditches could be provided. The highway geometry may be modified to introduce a winding alignment that would further reduce speeds. These changes are expected to decrease capacity on the parkway and cause traffic to divert to alternate routes. The bridge would remain as-is, but many trucks would also divert, reducing the likelihood of bridge hits. While parkway operations would decrease, it is expected that the crossover accident pattern would be reduced and the parkway would become more appropriate for its setting. This alternative requires further analysis to determine its feasibility.

Alternative #6 – Jurisdictional Transfer – New Route 370. This alternative would transfer jurisdictional control of the parkway to Onondaga County. NYSDOT would in turn, take over Old Liverpool Road as the new Route 370. Old Liverpool Road would be expanded to a five-lane arterial highway (two travel lanes in each direction, plus a two-way center left turn lane) and major intersections would be modified to increase capacity. These changes are intended to encourage through traffic to use Old Liverpool Road as the preferred route. This alternative would remove many trucks from the parkway and it is expected that bridge hits would be substantially reduced. Also, the County may modify the parkway as described in Alternative #5; these changes would further encourage traffic to use Old Liverpool Road. This alternative requires further analysis to determine its feasibility.

The following alternatives (#7-13) relate to the clearance safety needs at the CSX Railroad Bridge.

Alternative #7 – Raise Existing Bridge. This alternative would raise the bridge approximately 3 ft to provide a standard 14 ft of vertical clearance. The horizontal clearance would not be addressed. This alternative would require reconstruction of the approaches and have major park impacts, but it would have less impact overall than a complete bridge replacement. However, railroad traffic would not be able to be maintained during construction. Also, the bridge is owned by CSX and the Department has no authority to implement bridge solutions. Thus, this alternative is considered unfeasible.

Alternative #8 – New Bridge. This alternative would replace the bridge with a new structure that provides standard vertical and horizontal clearances and would address drainage issues. Construction would be staged with the railroad using the existing bridge during construction. Significant reconstruction of the railroad approaches would be required and there would be major park impacts. A new railroad crossing at Old Liverpool Road may be required as well. The condition of the bridge is such that it has remaining service life. Also, the bridge is owned by CSX and the Department has no authority to implement bridge solutions. Therefore, this alternative is considered unfeasible.

Alternative #9 – Movable Bridge. This alternative would replace the bridge with a movable bridge that would only be put in place when a train is crossing. The bridge, either a drawbridge or liftbridge, would otherwise be kept in the raised position. Gates would be constructed on both highway approaches. The horizontal clearance would be addressed. The advantage of this alternative would be that bridge hits should be eliminated while railroad reconstruction would be less than as required with Alternative #8. However, the cost of constructing, operating and maintaining a movable bridge would be significantly higher than a conventional fixed bridge. Also, a new alignment would be required, resulting in major park impacts. Further, the bridge would essentially act as an at-grade crossing when a train is crossing, which would cause delays to vehicle traffic and could introduce new safety issues. Also, the bridge is owned by CSX and the Department has no authority to implement bridge solutions. Thus, this alternative is considered unfeasible.

Alternative #10 – Lower Onondaga Lake Parkway. This alternative would lower the parkway to provide standard vertical clearance under the bridge. A special drainage system with pumps and watertight construction would be required to prevent the lowered highway section from flooding. There are potential safety concerns associated with this alternative. Although a pumping system will be provided there is a potential for the pumps to fail or become overwhelmed with heavy rains or high lake levels. This would lead to the flooding of this section of roadway. This flooding and possible icing of the roadway would create a safety concern with possible hydroplaning of vehicles and a slippery roadway. Significant flooding would require that the roadway be closed and motorist would be diverted to the local system. This could create significant delays and capacity issues for the local system. The section of roadway west of the CSX Bridge is also very susceptible to blowing and drifting snow, a lowered roadway may allow more snow to build up on the pavement and create an unsafe condition for motorists. In addition, there are environmental concerns which are detailed in Attachment 10. These include: potential impacts to threatened and endangered species, special handling of contaminated soil and ground water and potential impacts to historic and cultural resources. Lastly, this alternative would require an annual expense for the containerization, transport, and disposal of contaminated ground water. Due to the safety and environmental issues, the annual operating cost and accident reduction available through other alternatives, this alternative is considered unfeasible.

Alternative #11 – At-Grade Railroad Crossing. This alternative would remove the bridge and reconstruct the railroad on a new alignment, with an at-grade crossing on the parkway. This would address the clearance and drainage issues at the bridge but it would cause delays to vehicle traffic and may create safety issues at the crossing, including the possibility of train-vehicle crashes. More railroad approach work would be required and park impacts would be comparable to or greater than those of Alternative #8. Also, the bridge is owned by CSX and the Department has no authority to implement bridge solutions. This alternative is considered unfeasible.

Alternative #12 – Remove Bridge and Abandon Railroad. This alternative would remove the bridge and abandon the railroad line. The existing track connects the main line to Oswego, Watertown, Fort Drum and Canada. Abandoning the line would require trains to travel east to Albany, north to Montreal and back southwest to maintain service to the aforementioned areas. This change would affect 10-12 trains per day, sending them to already congested lines. Delivery of goods would take more time and be more costly. The financial impacts to the railroad and the businesses that rely on it would be significant. Also, the bridge is owned by CSX and the Department has no authority to implement bridge solutions. This alternative is considered unfeasible.

Alternative #13 – Permanent Over-Height Vehicle Detection System. If the system implemented as part of the safety enhancements proves to be effective and reliable (see page 51 for additional information), a permanent detection system could be installed on the parkway. The system would need to be combined with an intelligent traffic system (ITS), variable message signs and/or signals/gates to stop and direct over-height vehicles when they are detected. This alternative requires more analysis to determine its feasibility.

Other operational and contextual enhancements may be included as part of this project as appropriate. This may include: improvements that are sensitive to bicycle and pedestrian utilization of the parkway corridor; possible park and ride locations to improve commuter bus service; clear zone improvements such as flattening of ditches and removal or shielding of fixed objects and drainage improvements. A reconfiguration of park driveways could also occur. See Attachment 6 for a sketch of this intersection reconstruction.

Non-standard or Non-conforming Features – Refer to Attachment 7 for Design Criteria

The following nonstandard or nonconforming features have been identified. Other possible nonstandard and nonconforming features and/or justifications for retaining them will be identified and prepared, respectively, in preliminary design as the alternatives are refined further.

The existing lane and shoulder widths of 11 ft and 6 ft, respectively are below current design standards of 12 ft and 8 ft, respectively.

The CSX Railroad bridge over the parkway has nonstandard vertical and horizontal clearances. The bridge's height over the roadway (11 ft 9 in, 10 ft 9 in posted) and the minimum clearance

of approximately 2 ft between the roadway and bridge abutments are below current standards. Several signs on both approaches warn of the low vertical clearance. There are accident patterns associated with these restrictions. See Attachment 3 for additional information.

The culvert over Bloody Brook has nonconforming barrier. The existing barrier is a deteriorating stone wall built in 1932 and is National Register of Historic Places-Eligible. This wall also represents a fixed object hazard. The culvert itself is in fair to good condition overall, with a general, structural and channel recommendation of 5 and a barrel rating of 4. Further assessment of its condition, hydraulics and determination of whether or not it will be retained will be done during the project design phase.

1.4 How will the Alternatives Affect the Environment?

Exhibit 1.4-A Environmental Summary					
NEPA Classification	Class II w/ Doc (Preliminary)	BY	NYSDOT	Date	February 2011
SEQR Type:	Non-Type II (EIS) (Preliminary)	BY	NYSDOT	Date	February 2011
Permits that must be obtained during Final Design : TBD					

Refer to Attachment 8 for Environmental Scoping Checklist.

The alternatives' impacts on the environment vary considerably. Any alternative that involves parkland right of way acquisitions (most highway alternatives and all new bridge alternatives) would trigger Section 4(f) and Section 6(f) requirements. This, along with associated impacts and mitigation measures, may be considered significant as per National Environmental Policy Act (NEPA) and State Environmental Quality Review (SEQR) Act regulations. These details will be further studied during the project design phase.

Anticipated Permits/Certifications/Coordination:

New York State Department of Environmental Conservation (NYSDEC):

- State Pollutant Discharge Elimination System (SPDES) General Permit
- Floodplain Analysis
- Water Quality Certification (Sec 401) of the Federal Water Pollution Control Act (FWPCA)

Environmental Protection Agency (EPA):

- NPDES General Permit

Coordination

- Coordination with NYSDEC pursuant to the "NYSDEC/NYSDOT Memorandum of Understanding Regarding ECL Article 15 & 24"
- Coordination with Federal Highway Administration (FHWA)
- Coordination with New York State Historic Preservation Officer (SHPO)
- Coordination with the US Fish and Wildlife Service
- Coordination with the New York Natural Heritage Program
- Coordination with the Onondaga Nation
- Coordination with Onondaga County Parks and Recreation

- Coordination with Village of Liverpool and Town of Salina
- Coordination with CSX Transportation

Others

- US Army Corps of Engineers
- Construction Staging Permit
- Construction Solid Waste Disposal Permit
- Local Permits
- Indirect Source Air Quality Permit
- Air Quality Analysis
- Section 4(f) of USDOT Act (Impact on parks, historic properties, historic bridges)
- Section 6(f) (due to use of Land and Water Conservation funds)
- Historic or Archaeological Impacts on Federal 106

It should be noted that the highway passes through a County park and significant environmental and cultural impacts are anticipated. Appropriate mitigation will need to be identified. In addition, Onondaga Lake is a 303(d) listed lake, as it is considered a water for which pollution controls are not sufficient to attain or maintain water quality standards. There are also a number of cultural and historical assets within this corridor including lands with significance to concerned Native American Nations.

1.5. Feasible Alternatives

The alternatives considered and those considered feasible are shown in Exhibit 1.6. The preferred alternative will be selected during preliminary design. Note that a combination of alternatives may form the preferred alternative. The selection process will include an assessment of the social, economic and environmental effects of the feasible alternatives. Cost and public input will also be factors considered in the selection process.

1.6. What Are The Costs & Schedules?

All feasible alternatives are under consideration. The project is currently budgeted with a construction cost of $3M. The actual cost will be dependent on the feasible alternatives chosen and can range from $1M (Alternative #2) to more than $30M (Alternative #6 + Alternative #13). Design Approval is scheduled for November 2013 with Construction scheduled to begin in 2016.

Exhibit 1.6.1
Project Schedule

Activity	Forecast
Scoping Approval	2011
Design Approval	2014
ROW Acquisition	2014
Construction Start	2016
Construction Complete*	2017

*Will be dependent on alternative(s) chosen

Exhibit 1.6-B1
Comparison of Highway Alternatives

Alternative / Category	#1 Null	#2 Median Barrier Installation	#3 Divided Highway	#4 Three Lane Configuration	#5 Two Lane Configuration	#6 Jurisdictional Transfer – New Route 370
Crossover accident pattern	Does not address	Addresses	Addresses	Addresses (barrier option only)	Addresses (with barrier or raised median)	Improves
Highway Operations	No change	No effect on capacity, but restricts U-turns and emergency vehicle movements	No change	Decreases overall capacity, movable barrier option restricts U-turns and emergency vehicle movements	Decreases overall capacity significantly	Will increase travel times
Construction Cost	None	$1-3M, depending on type of barrier chosen	$45M + right of way (ROW) acquisitions	$5-6M, depending on lane control system type	$10-15M + ROW, depending on extent of park improvements	$30M + ROW
Maintenance Costs	None	Varies, depending on barrier type	Increases - more pavement and roadside to maintain	Increases – lane control system would require routine maintenance and repairs	Decreases – reduced traffic volumes should lower maintenance costs	Increases - new arterial would be more costly and difficult to maintain
Park right of way (ROW) Acquisitions*	None	Possible	Very Significant – highway ROW width would effectively be doubled.	None	Some – depends on extent of park improvements	None
Park impacts*	None	Moderate – barrier would restrict access to park resources and create a visual impact as well	Very High - Requires removal or relocation of many park features; changes overall character	Moderate – barrier would restrict access to park resources and create a visual impact as well	High – Many impacts to park, both positive and negative	None
Feasible?	No	Yes	No	No	TBD**	TBD**

*Note that the state ROW line goes only to the pavement edge and all build alternatives will trigger at least temporary park impacts, if not permanent impacts as well.
**To be determined

Exhibit 1.6-B2
Comparison of Bridge Alternatives

Alternative / Category	#7 Raise Existing Bridge	#8 New Bridge	#9 Movable Bridge	#10 Lower Onondaga Lake Parkway	#11 At-Grade Railroad Crossing	#12 Remove Bridge and Abandon Railroad	#13 Permanent Overheight Vehicle Detection System
Accident patterns	Vertical clearance accidents reduction anticipated	Vertical clearance accidents reduction anticipated	Vertical clearance accidents eliminated but may increase rear-end crashes at crossing	Vertical clearance accidents reduction anticipated	Vertical clearance accidents eliminated but may increase rear-end crashes at crossing; possible train-vehicle crashes	Vertical clearance accidents eliminated	Vertical clearance accidents reduction anticipated
Nonstandard vertical and horizontal clearances	Addresses only vertical clearance	Addresses both	Addresses both	Addresses only vertical clearance	Addresses both	Addresses both	Does not address either
Railroad impacts*	High – rail traffic cannot be maintained during construction	High – Reconstruction of approaches, possible new crossing at Old Liverpool Road	High – new alignment required, but less grade work than Alt. #8	Minimal – may require work on bridge abutments	High - New alignment and new at-grade crossing required	Enormous – trains must take detour of several hundred miles, increasing costs and transport times significantly	None
Highway Operations	No change	No change	Reduces overall capacity	No change	Reduces overall capacity	No change	Will cause delays only when overheight vehicle is detected
Construction Cost	$12-16M, depending on railroad reconstruction limits	$20M	$20M+	$10M plus $1.8M annually	$4-6M, depending on railroad reconstruction	$1-2M	TBD
Maintenance Costs	No change	No change	Increases – bridge requires operator and regular maintenance	Increases significantly – drainage system requires regular maintenance	No change	No change	Increases
Park ROW Acquisitions	Significant	Very Significant	Very Significant	Moderate	Very Significant	None – Railroad ROW may be returned to park	Minor
Park impacts	High –affects many park resources, but less than Alts. #8 and #9	High –affects many park resources	High –affects many park resources	Moderate – drainage system installation would require significant earthwork and create a visual impact	High – affects many park resources	Positive - Improves park air quality and reduces noise levels by eliminating all train traffic	Low – detection system and related equipment will have some visual impacts
Feasible?**	No	No	No	No	No	No	TBD

*All bridge alternatives (except Alt. #13) will result in alteration of a railroad crossing and will require an administrative law hearing.
**If railroad traffic cannot be maintained during construction, the alternative is considered unfeasible by CSX.

1.7. Who Will Decide Which Alternative Will Be Selected And How Can I Be Involved In This Decision?

The New York State Department of Transportation will select an alternative or combination of alternatives that will make up the preferred alternative. This decision will be based upon technical evaluations and input from Onondaga County officials and the public. Public meetings will be held during the early design phases. The Department will notify the public of meeting opportunities through the media and roadside message boards.

Exhibit 1.7
Public Involvement Plan Schedule of Milestone Dates

Activity	Date Occurred/Tentative
Meeting with Town of Salina and Village of Liverpool Reps.	To be scheduled
Public Informational Meeting	To be scheduled
Current Project Letting date	2016

Contact Information:
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Project Identification Number (PIN) 328717
Questions or comments: Email: jflint@dot.state.ny.us
Telephone: 315-428-4409

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333 E. Washington St.
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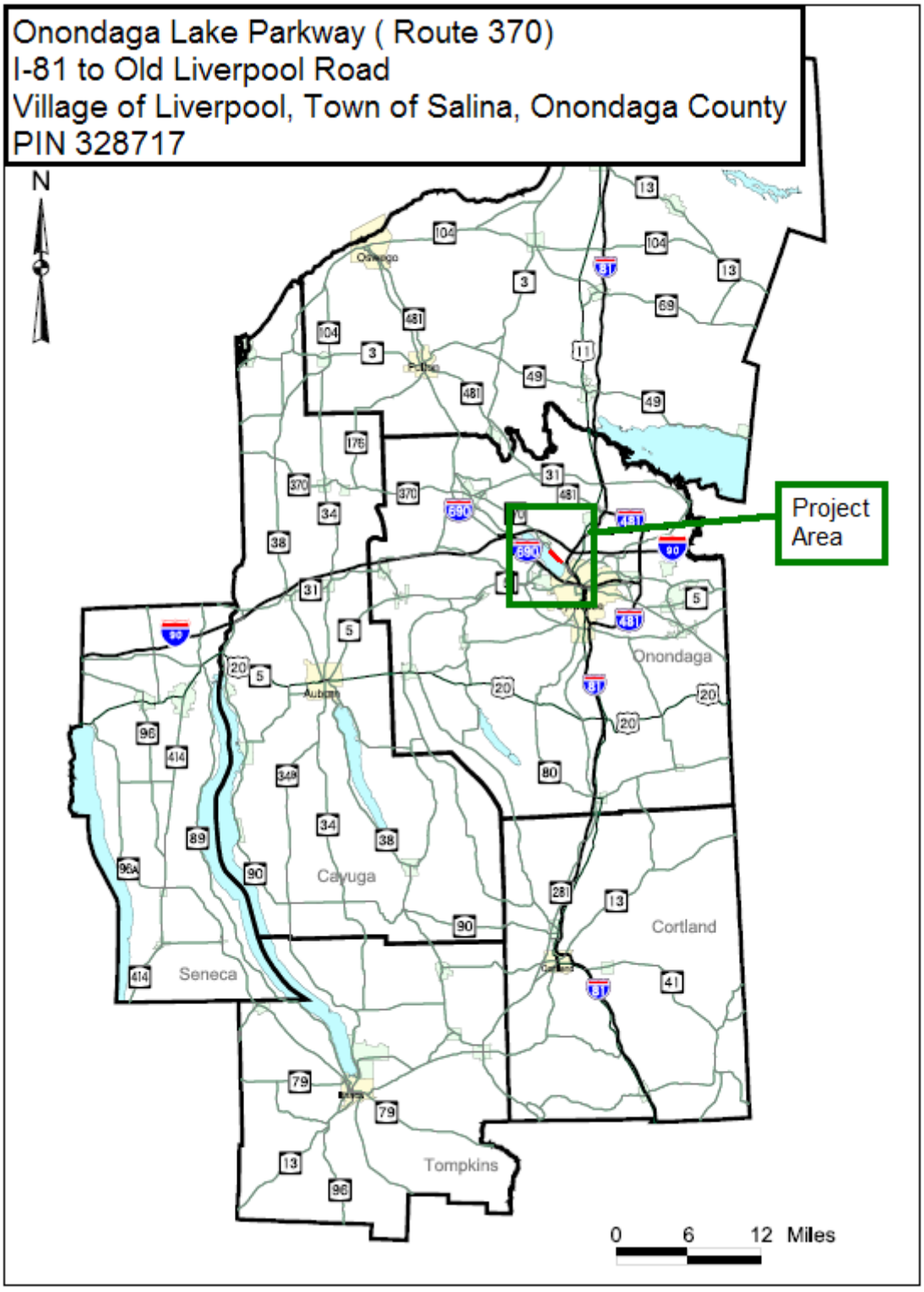
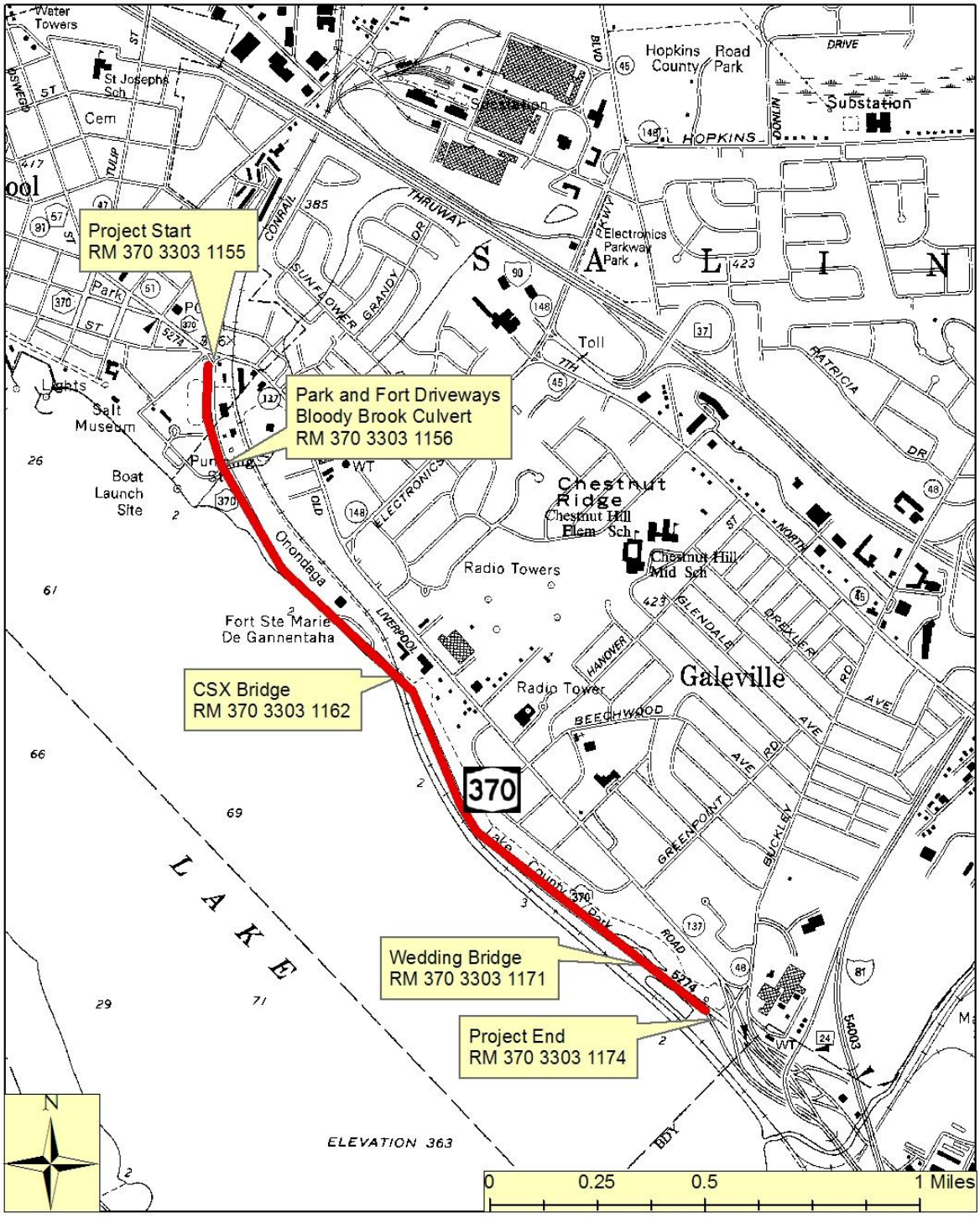
Attachment 1: Project Maps



Route 370 (Onondaga Lake Parkway) Safety Improvements
Village of Liverpool, Town of Salina, Onondaga County
PIN: 328717



Attachment 2: Project Photographs

CSX Railroad Bridge over highway, heading westbound. Note minimal horizontal clearance and posted 10’ 9” vertical clearance at railroad bridge.

Typical section, westbound. Note Wedding Bridge on right.

Typical section, eastbound. Note parking area with undefined access on right side

Highway near Onondaga Lake Park Entrance, heading westbound towards Village of Liverpool. Note stone barrier walls of Bloody Brook culvert

Attachment 3: Accident Analysis and Discussion

1) Accident Rate and Severity

The accident history was analyzed for the length of the project including 0.3 miles beyond the project limits. The accident rates for the 3.8 year period from June 01, 2006 through March 31, 2010 are as follows:

Location		Linear Accident Rate	Statewide Avg. Rate
RM 370 3303 1154 RM 370 3303 2000	To	1.36 ACC/MVM	1.62 ACC/MVM

In addition, the table of accidents, by year and severity for the same 3.8 year period as follows:

Year	Fatal	Injury	PDO*	Total
6/06-12/06	0	6	4	10
2007	0	12	18	30
2008	1	10	29	40
2009	0	2	8	10
1/10-3/10	0	1	3	4
Totals	1	31	62	94
Severity	1.06%	32.98%	65.96%	100%
State Average**	0.30%	30.68%	69.02%	

*PDO: Property damage only
**2009 Average, All Accident types, Partial Access, Urban, Divided, 4 Lanes

It should be noted that complete accident data using the Safety Information Management System (SIMS) is available only through March 31, 2010. A review of incomplete data from March 31, 2010 through Dec. 31, 2010 revealed 10 additional accidents; 2 fatal accidents, 4 injury, and 4 PDO/non-reportables.

2) High Accident Locations (HAL) Data: HAL year 2009 data was used for Route 370. This data was for the time period 11/07 to 10/09. Locations noted below.

a) Priority Investigation Locations (PIL's): RM 370 3303- 1153 to1156. This location is located in the vicinity of the Oswego St./Old Liverpool Rd./Route 370 intersection. It is a skewed 5 legged intersection with a slip ramp to eastbound Old Liverpool Rd. The intersection is controlled by a 3 color signal with dedicated turning phases. A rear end accident pattern was identified along the westbound Route 370 approach occurring

during both AM and PM peak hours as a result of following too closely and driver inattention. Additionally, there was a cluster of left turn head on accidents along the eastbound Oswego St. (Route 931G) approach attributable to traffic control disregard and failure to yield to oncoming traffic. There were a couple of accident clusters involving right angle crashes along both the eastbound 1st Street approach and the westbound right turn slip ramp to eastbound Old Liverpool Road occurring mainly during PM peak hours.

b) Priority Investigation Intersections (PII's): None Identified.

c) Safety Deficient Locations (SDL's): None Identified.

3) Accident Clusters: There are 4 notable clusters of accidents as described below:

- The first accident cluster being noted above in the PIL section described above RM 1153-1156, located in the vicinity of the Oswego St./First. St./Old Liverpool Rd./Route 370 intersection.

- The second cluster is at the Onondaga Lake Park entrance RM 1157-58, most of which are rear end crashes due to high peak hour volumes with motorists attempting to enter the park from the westbound direction.

- The third cluster of accidents is in the vicinity of the CSX railroad underpass and easterly RM 1162-1166. Westbound vehicles are leaving the roadway under snow and ice or wet pavement conditions either just prior to or while negotiating the curve as the highway goes under the railroad bridge. There were a total of 6 run off the road accidents involving westbound vehicles of which, 3 involved wet road conditions and 3 involved snow and ice. There were 4 run off the road crashes involving westbound vehicles hitting the north abutment (2 of which resulted in injuries) with the other 2 crashes involving vehicles exiting the highway.

- The fourth and largest cluster of accidents involves large trucks (and one bus) hitting the CSX Bridge over the highway at RM 1163. The recent Mega bus crash involving the CSX Bridge which occurred on 9/11/2010 resulted in 4 separate fatalities and numerous injuries. Over the last 24 years (1/1/1987 thru 12/31/2010) there were 53 accidents involving the CSX Bridge over the highway. During this period there were various signing changes implemented involving large ground mounted and overhead signs along both the parkway and approaches to the parkway. Under contract D256167 ('95-'96) large ground mounted warning signs were placed along both directions. Flashing beacons were installed on some of these large warning signs. Fluorescent orange panels were installed along the bottom chord of bridge. In addition, under contract D257107 (1997) several overhead signs were placed along the approach ramp at the east end of the parkway and a new overhead sign and ground mounted signs were placed in the Village. A review of the accident reports (1/1/87 thru 12/31/10) and crash history

indicates a 24% reduction in the number of accidents involving the CSX Bridge after the signs were installed.

A review of the accident reports (1/1/87 thru 12/31/10) indicate that many of the operators appeared to be from the immediate area and thought they could "make it" under the clearly posted 10'- 9" height clearance. A review of these 53 accidents reveals the following:

- 51% of the crashes involved eastbound motorists.
- 58% of the crashes involved drivers with out of state licenses.
- 42% of crashes involved in-state (NY) drivers, 90% of these were from the immediate surrounding area.
- Approximately 53% of crashes involved large tractor trailers with the remaining balance of 47 % being box trucks with the exception of the recent bus crash.
- Approximately 78% of the crashes occurred during daylight hours.
- 9% of the crashes resulted in injuries with the remainder being property damage only with the exception of the Mega bus accident.

There has been a history of head-on type collisions on this highway for many years. In 1994, a 4 ft. striped flush median was installed in an attempt to reduce the number of head-on collisions. A study was performed after installing the 4 ft. striped median that indicated the number of head-on accidents were reduced by 35% after the installation of the 4 ft. striped median. Additionally, a seasonal speed reduction from 55 to 45 MPH was implemented in the Fall of 2000 to reduce the number and severity of crashes along the Parkway during winter months. This reduced speed limit has been in effect beginning Nov. 1st and ending Apr. 1st since it was first implemented in the Fall of 2000. Since implementation of the seasonal speed reduction there has been a 41% reduction in the total number of accidents, 53% reduction in the number of slippery pavement accidents and 63% reduction in the number of head-on accidents during the Nov. 1st - Apr. 1st time period.

During the Study period of June 1, 2006 to March 31, 2010, there were 4 head-on type accidents along this stretch of highway:

- On 3/5/07 3:15 PM [RM 1160] an accident occurred involving a westbound vehicle that lost control while navigating the curve under the railroad bridge and struck an eastbound vehicle. Apparent factors were blowing snow and zero visibility contributing to numerous secondary crashes involving vehicles crossing into opposing lanes of travel resulting in injuries.

- On 4/10/07 5:20 AM [RM 1166] an accident occurred when an eastbound vehicle 1 witnessed a westbound vehicle cross the median into his path. They did not collide but as a result, vehicle 1 lost control on the wet road and came to rest in a pond.

- On 10/23/07 8:50 AM [RM 1157] an accident occurred where a speeding westbound vehicle swerved into the path of an eastbound vehicle and collided to avoid striking 2 cars waiting for a dog to cross the roadway.

- On 2/20/09 8:30 AM [RM 1164] an accident occurred as a result of snow and ice covered roadways in which the errant vehicle crossed the median and into the path of an oncoming vehicle.

- Additionally, two more head-on collisions occurred in August 2010. The first collision occurred on August 16 [RM 1165], resulted in a fatality (see Fatality section below), the second accident occurred on August 17 [RM 1167] at dusk when a driver swerved to avoid an animal and slid into an oncoming eastbound vehicle, resulting in minor injuries.

Fatalities:

5 fatal accidents were noted within the project limits for the period 1987 thru March 31, 2010. Two recent fatal accidents occurred on August 16, 2010 and Sept. 11, 2010 with the latter resulting in 4 deaths (See discussions below). These 7 accidents resulted in a total of 10 deaths.

Fatalities: details

2/23/1994 at 12:15 PM, [RM 1167], [*Head-On*] snow and ice conditions: Vehicle 1 westbound on Route 370, making an unsafe lane change, lost control and crossed into the path of Vehicle 2 heading eastbound.

3/22/1996 at 11:45 PM, [RM 1162], [*Head-On*] snow and ice conditions: Vehicle 1 westbound on Route 370, under the influence of alcohol, lost control and crossed into the path of Vehicle 2 heading eastbound.

5/12/1996 at 4:30 AM, [RM 1158], [*Pedestrian*] snow and ice conditions: Vehicle 1 westbound Route 370, speeding in poor visibility, lost control and struck 2 pedestrians along the north shoulder of the highway adjacent to parked cars.

10/18/2001 at 10:30 AM, [RM 1174], [*Sideswipe*] dry and clear conditions: Vehicle 1 eastbound Route 370, speeding made an unsafe lane change, lost control and struck another eastbound Vehicle 2, (which came to rest off the south shoulder) then spun and rolled over into westbound traffic and was struck by a westbound Vehicle 3.

1/12/2008 at 2:55 AM, [RM 1169], [*Run-off-Road*] dry and clear conditions: Vehicle 1 eastbound Route 370, speeding under the influence of alcohol, lost control and entered the ditch along the south shoulder of the highway. The

vehicle exited the ditch airborne and struck a tree.

Fatal accidents that occurred after March 31, 2010:

8/16/2010 at 12:33 PM, [RM 1164], [*Head On/Sideswipe*] dry and clear conditions: Vehicle 1 eastbound Route 370, speeding, while aggressive driving, attempted to pass a vehicle lost control and struck vehicle 2 westbound killing the driver. Accident debris caused other vehicles to become involved.

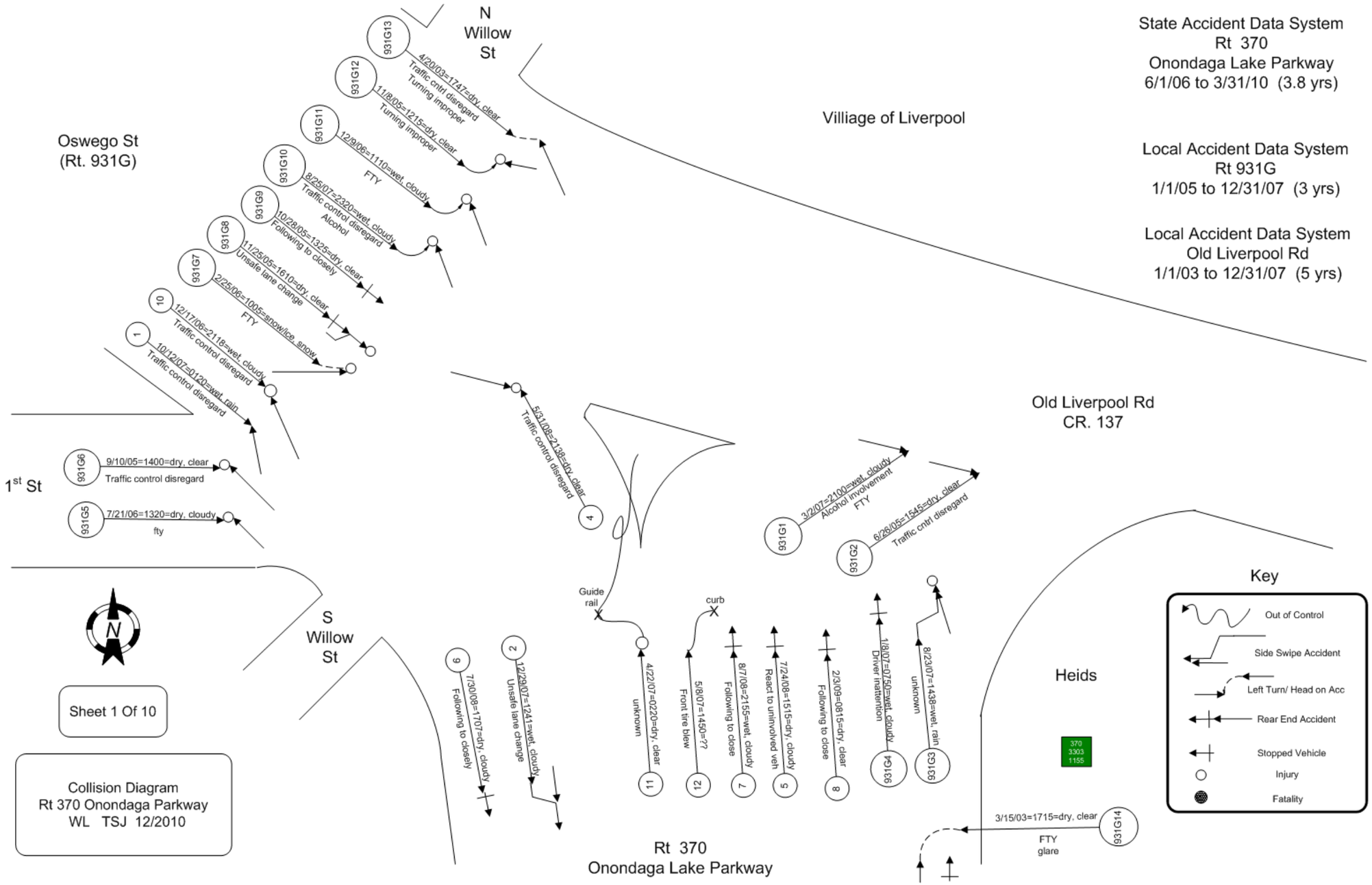
9/11/2010 at 2:30 AM, [RM 1163], [*Bridge Hit*] at the CSX railroad underpass, under dry and clear conditions: Vehicle 1 a double decker bus westbound Route 370, while distracted, struck the superstructure, peeling back the top front half of the bus before it came to rest on its side killing 4 passengers and injuring several others.

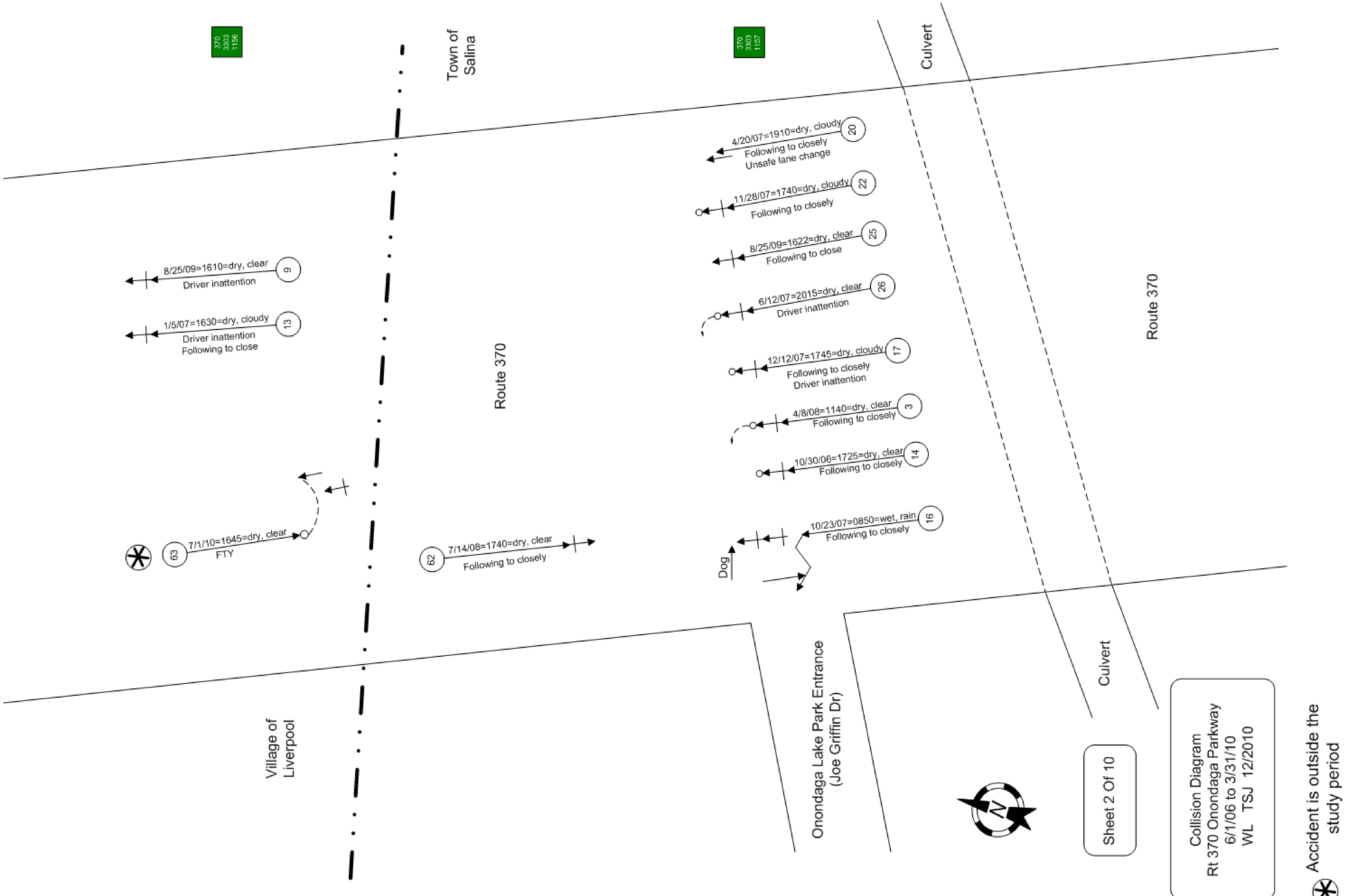
4) **Pedestrian/Bicycle-related accidents:** 12/4/06 6:30PM a pedestrian accident occurred within the study range at RM 1158 where a pedestrian attempted to cross the highway from south to north in snowy conditions and was struck. Of note, this may have been related to the seasonal "Lights on the Lake" display at Onondaga Lake Parkway.

5) **Bad Actor Locations (Fixed Object crashes):** There were no crashes related to utility poles however there were numerous crashes involving the CSX Bridge were related to vehicles taller than the available vertical clearance along the Parkway.

6) **General Additional Accident Discussion:** Crossover accidents along with run off the road crashes continue to be a problem along the Parkway. Unsafe speed remains a major contributor to many of the accidents along the corridor. Observed speeds are consistently above the posted speed limit. A winter seasonal speed reduction to 45 MPH was imposed in Fall of 2000. Although speeds are reduced during the winter season, they still remain higher than the posted speed limit. The rear-end type collisions being observed along the westbound approach at the Park entrance and the Route 370 approach to First. St. in the Village of Liverpool are expected to continue as the traffic volumes remain high and driver distraction continues to be an issue. Bridge crashes along the Parkway involving large trucks and the limited vertical clearance at the CSX Bridge continue to be a problem.

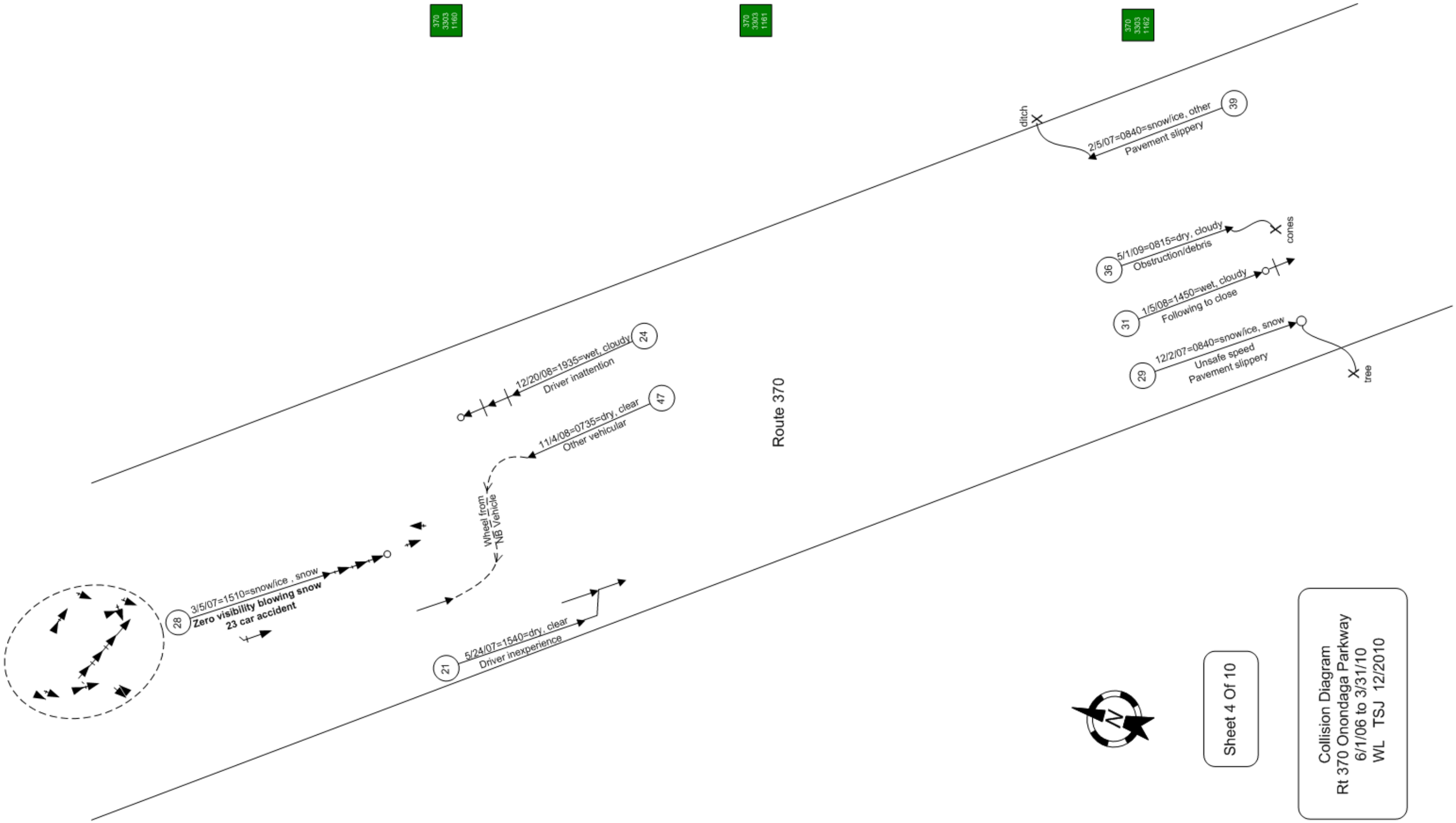
7) **Correctable Accident Patterns:** The occurrence of run off the road/fixed object type accidents is generally associated with snow and ice or wet pavement conditions. Clear zone deficiencies would need to be addressed to reduce the number of fixed object type crashes. Placement of median barrier would be needed to reduce or eliminate the number and severity of head-on type collisions. Rear end accidents involving left turn activity into the park could be reduced with the introduction of a dedicated left turn lane. Options for reducing the number of CSX Bridge crashes should be explored along with other accident safety countermeasures in order to reduce the overall number of injury related crashes along the Parkway.

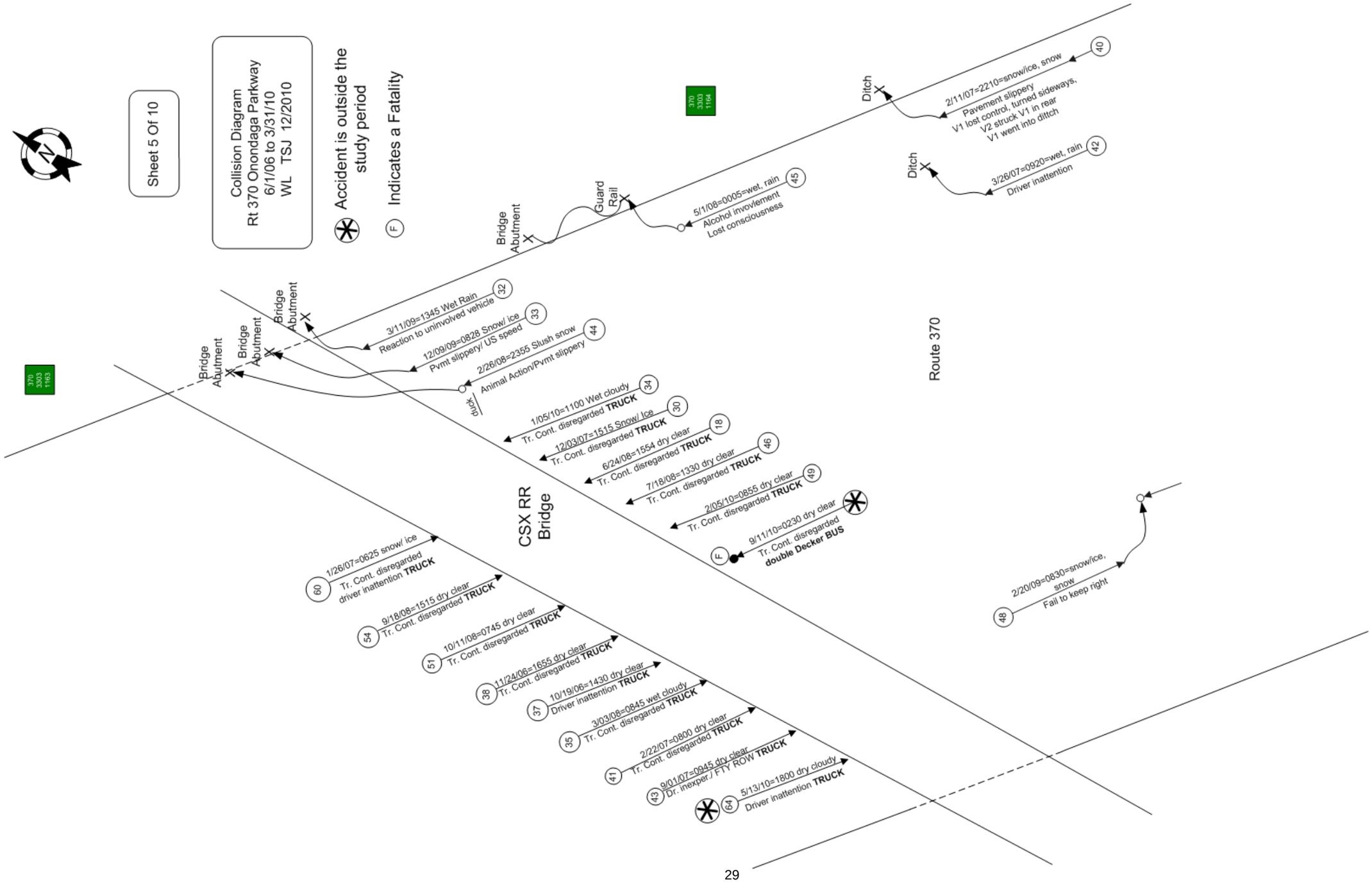

N
Willow
St
Oswego St
(Rt. 931G)
Villiage of Liverpool
State Accident Data System
Rt 370
Onondaga Lake Parkway
6/1/06 to 3/31/10 (3.8 yrs)
Local Accident Data System
Rt 931G
1/1/05 to 12/31/07 (3 yrs)
Local Accident Data System
Old Liverpool Rd
1/1/03 to 12/31/07 (5 yrs)
931G13
4/20/03=1747=dry, clear
Traffic cntrl disregard
Turning improper
931G12
11/8/05=1215=dry, clear
Turning improper
931G11
12/9/06=1110=wet, cloudy
FTY
931G10
8/25/07=2320=wet, cloudy
Traffic control disregard
Alcohol
931G9
10/28/05=1325=dry, clear
Following to closely
931G8
11/25/05=1610=dry, clear
Unsafe lane change
931G7
2/25/06=1005=snow/ice, snow
FTY
10
12/17/06=2118=wet, cloudy
Traffic control disregard
1
10/12/07=0120=wet, rain
Traffic control disregard
931G6
9/10/05=1400=dry, clear
Traffic control disregard
1st St
931G5
7/21/06=1320=dry, cloudy
fty
N
Sheet 1 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
WL TSJ 12/2010
S
Willow
St
5/31/08=2138=dry, clear
Traffic control disregard
4
Old Liverpool Rd
CR. 137
931G1
3/2/07=2100=wet, cloudy
Alcohol involvement
FTY
931G2
6/26/05=1545=dry, clear
Traffic cntrl disregard
Guide
rail
curb
4/22/07=0220=dry, clear
unknown
11
5/8/07=1450=??
Front tire blew
12
8/7/08=2155=wet, cloudy
Following to close
7
7/24/08=1515=dry, cloudy
React to uninvolved veh
5
2/3/09=0815=dry, clear
Following to close
8
1/8/07=0750=wet, cloudy
Driver inattention
931G4
8/23/07=1438=wet, rain
unknown
931G3
9
7/30/08=1707=dry, cloudy
Following to closely
2
12/29/07=1241=wet, cloudy
Unsafe lane change
Rt 370
Onondaga Lake Parkway
Heids
370
3303
1155
3/15/03=1715=dry, clear
FTY
glare
931G14
Key
Out of Control
Side Swipe Accident
Left Turn/ Head on Acc
Rear End Accident
Stopped Vehicle
Injury
Fatality

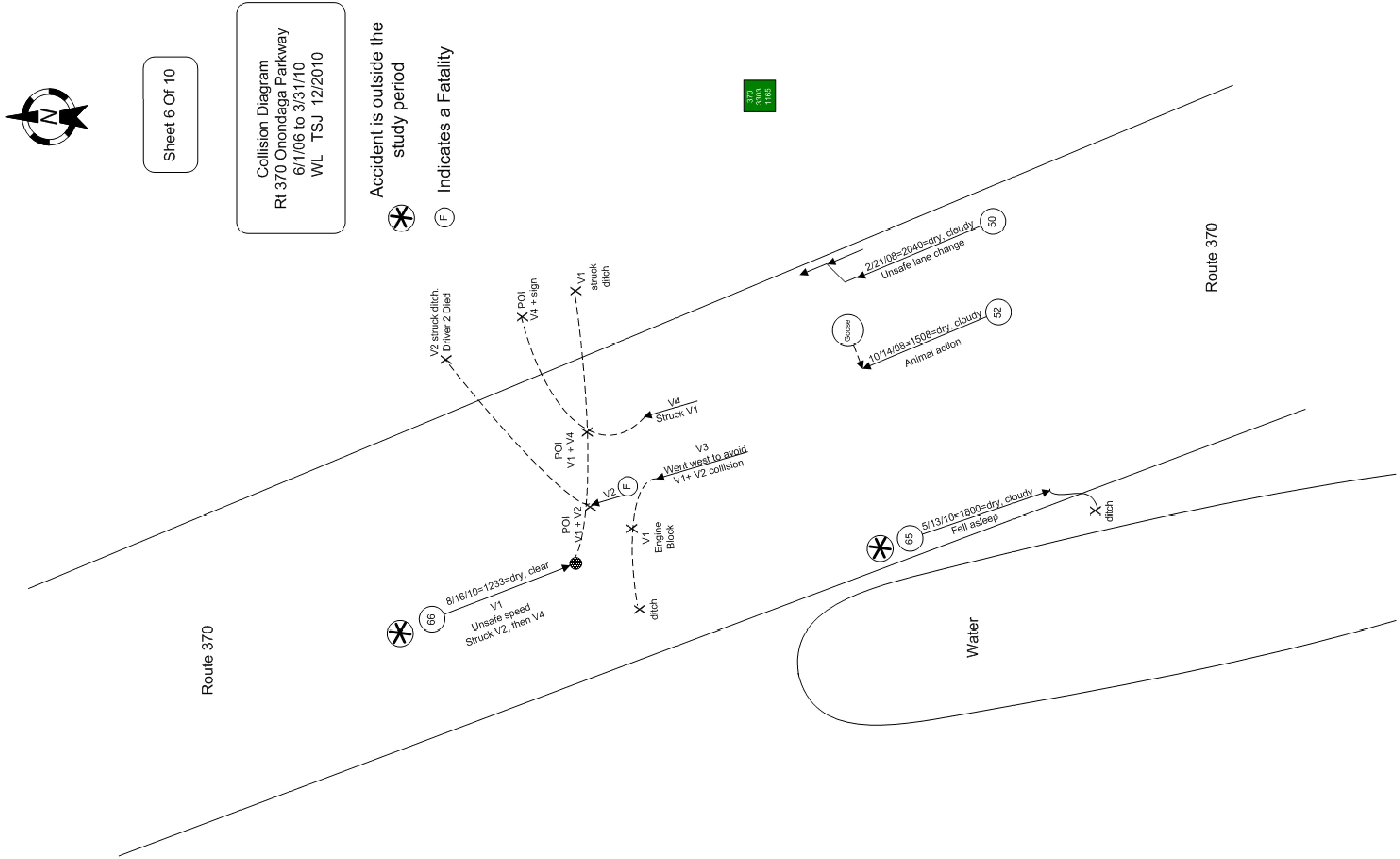


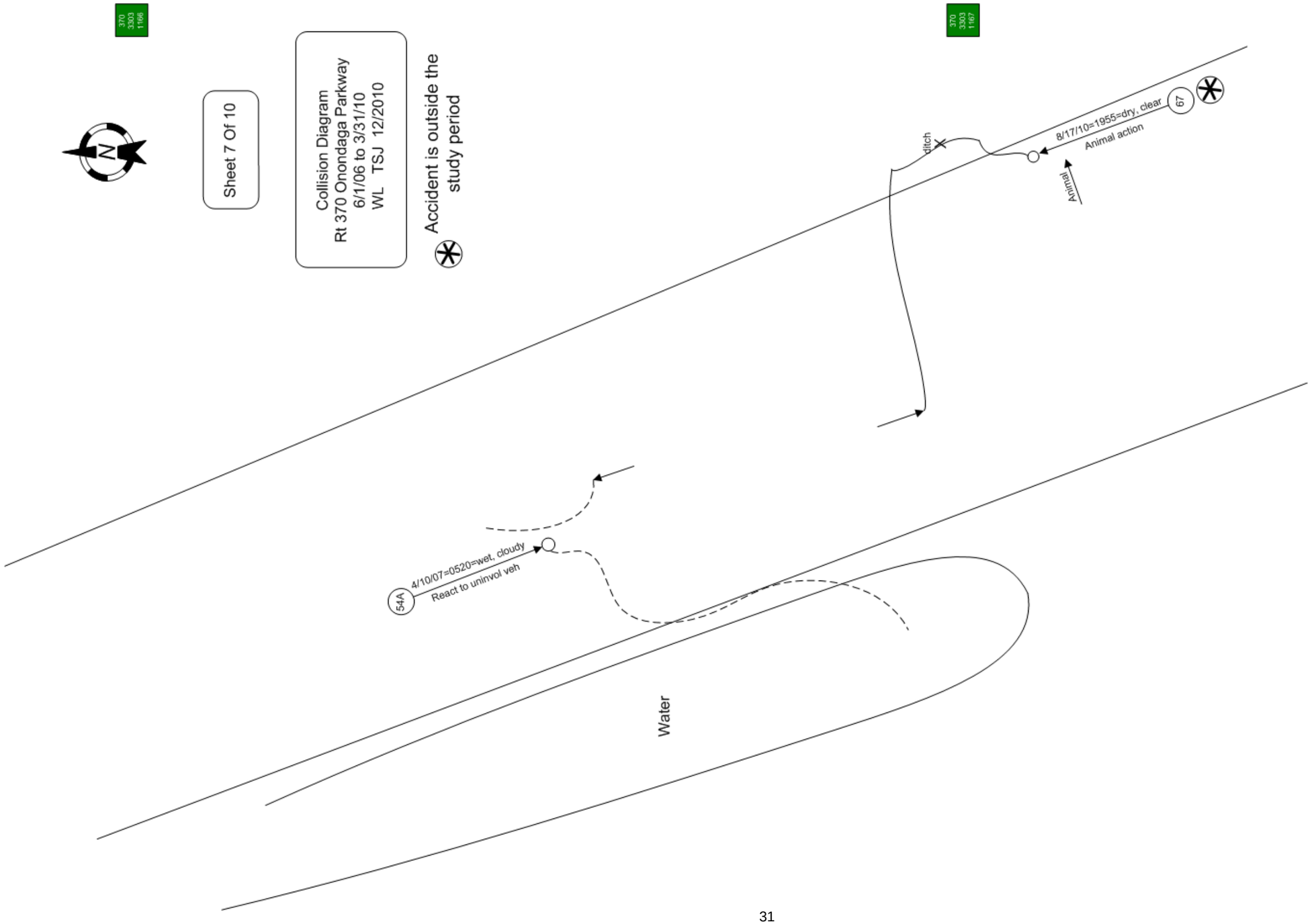
Town of Salina
Village of Liverpool
Route 370
Culvert
Onondaga Lake Park Entrance (Joe Griffin Dr)
4/20/07=1910=dry, cloudy
Following to closely
Unsafe lane change
11/28/07=1740=dry, cloudy
Following to closely
8/25/09=1622=dry, clear
Following to close
6/12/07=2015=dry, clear
Driver inattention
12/12/07=1745=dry, cloudy
Following to closely
Driver inattention
4/8/08=1140=dry, clear
Following to closely
10/30/06=1725=dry, clear
Following to closely
10/23/07=0850=wet, rain
Following to closely
Dog
8/25/09=1610=dry, clear
Driver inattention
1/5/07=1630=dry, cloudy
Driver inattention
Following to close
7/1/10=1645=dry, clear
FTY
7/14/08=1740=dry, clear
Following to closely
Sheet 2 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010
Accident is outside the study period

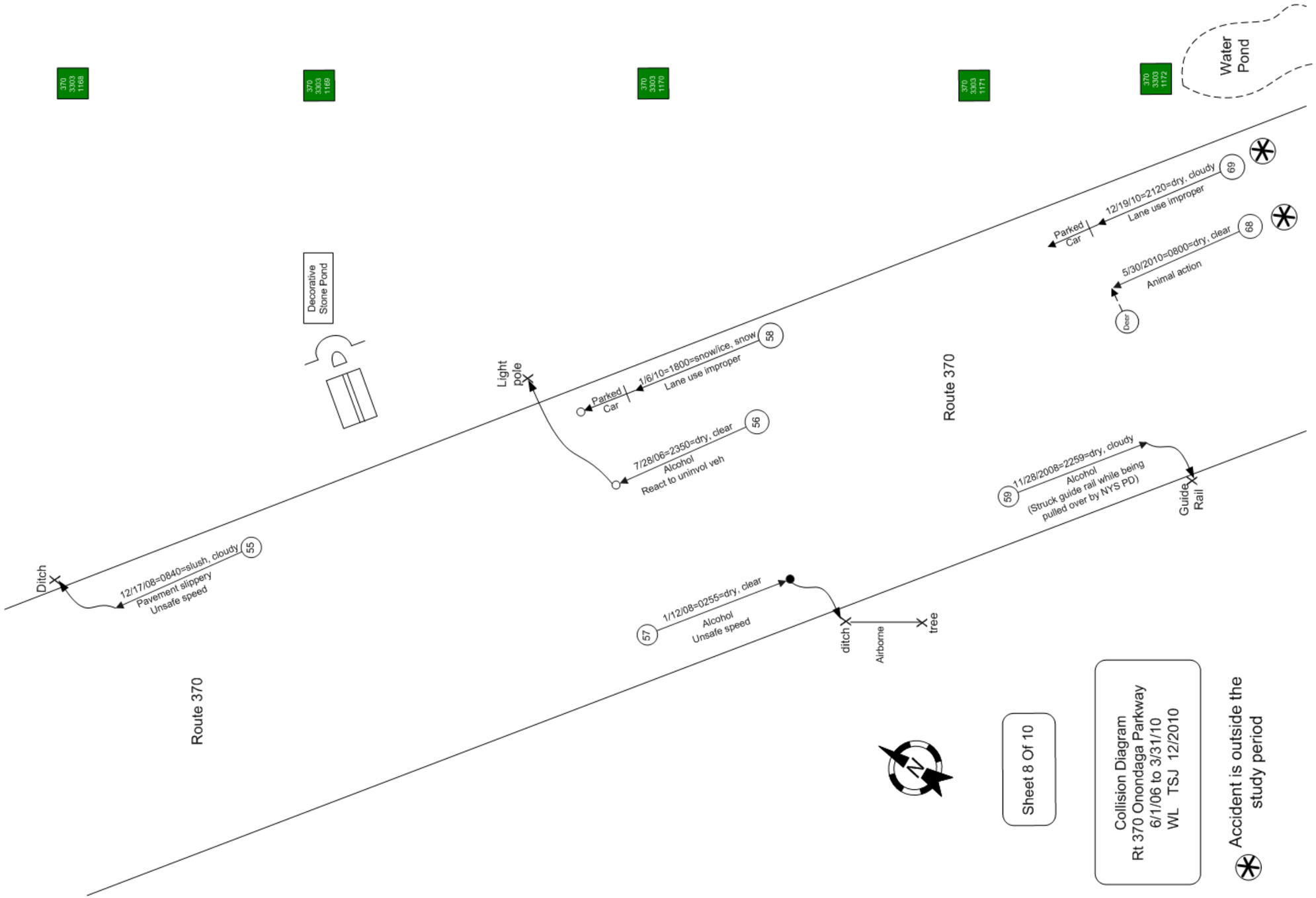

370
3303
1158
370
3303
1159
St Marie
Entrance
Drain
pipe
10/10/06=1200=dry, cloudy
Unsafe lane change
27
Route 370
12/15/07=1720=dry, clear
Driver inattention
23
1/11/07=0945=wet, cloudy
fty
15
12/4/06=1830=snow/ice, snow
Ped error/confusion
19
Ped
Route 370
Sheet 3 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010

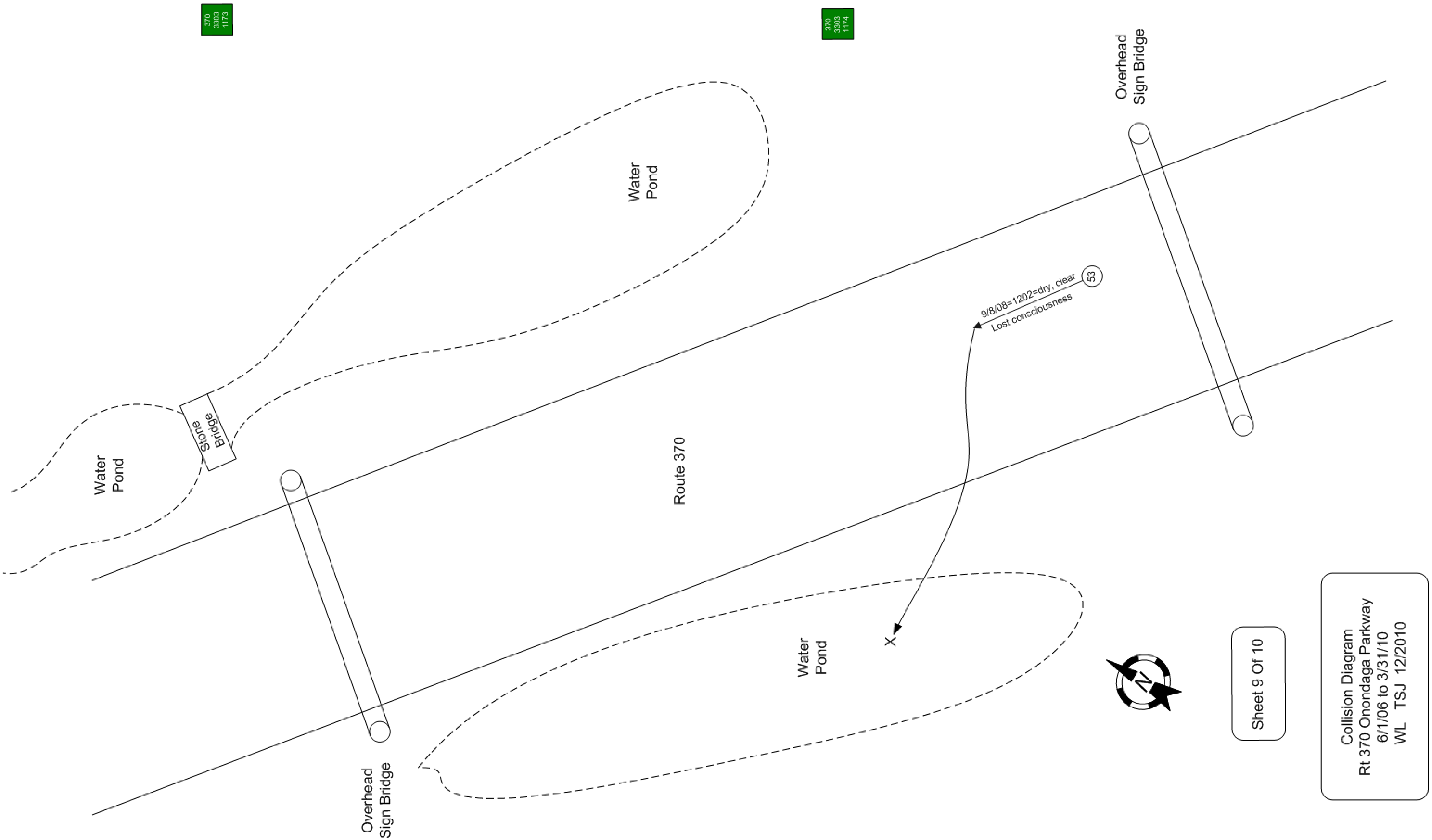

370 3303 1160
370 3303 1161
370 3303 1162
Route 370
ditch
2/5/07=0840=snow/ice, other
Pavement slippery
39
5/1/09=0815=dry, cloudy
Obstruction/debris
36
cones
1/5/08=1450=wet, cloudy
Following to close
31
12/2/07=0840=snow/ice, snow
Unsafe speed
Pavement slippery
29
tree
12/20/08=1935=wet, cloudy
Driver inattention
24
11/4/08=0735=dry, clear
Other vehicular
47
Wheel from NB Vehicle
3/5/07=1510=snow/ice , snow
Zero visibility blowing snow
23 car accident
28
5/24/07=1540=dry, clear
Driver inexperience
21
N
Sheet 4 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010

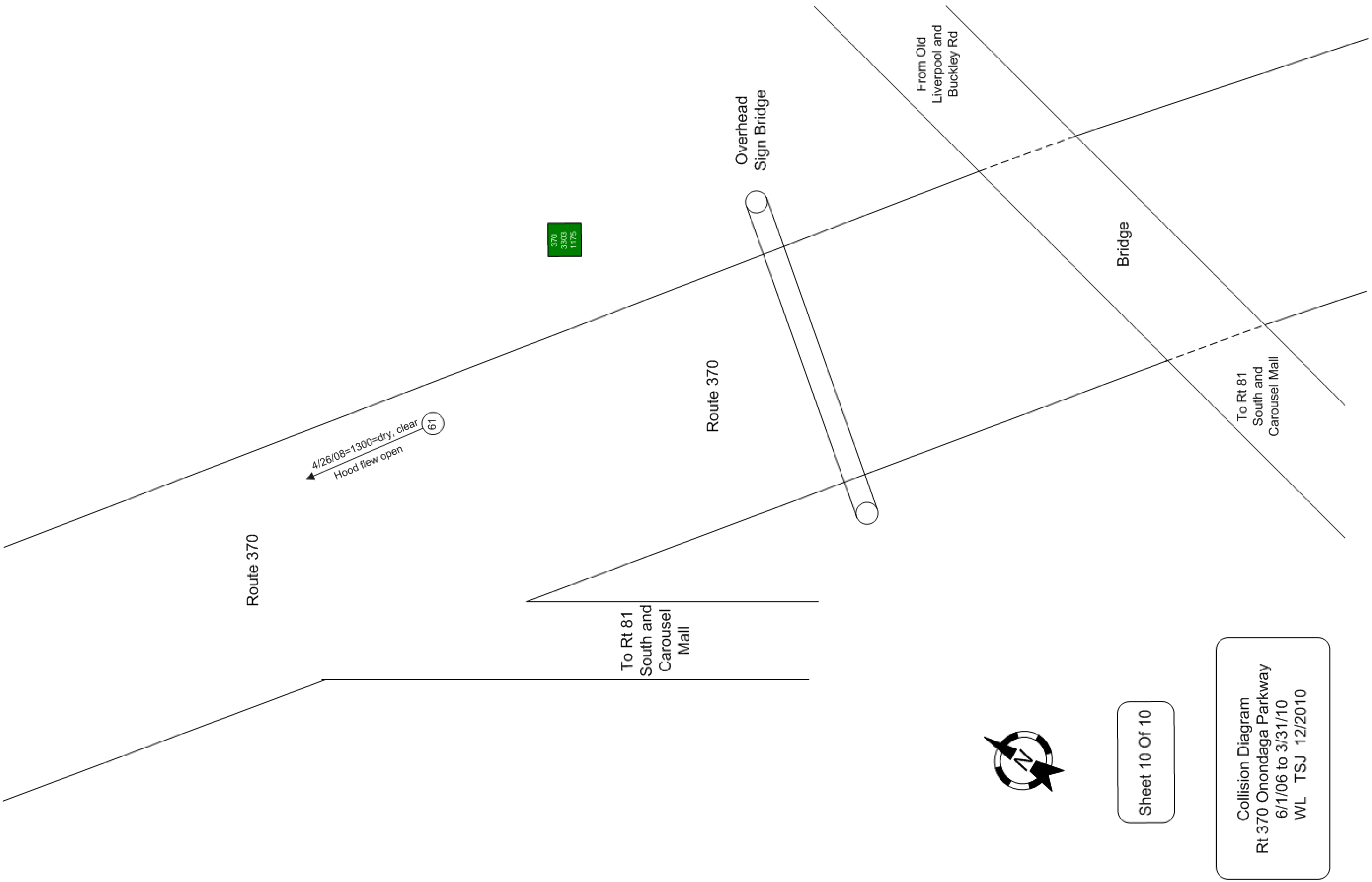

N
Sheet 5 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010
Accident is outside the study period
Indicates a Fatality
370 3303 1164
370 3303 1163
Route 370
CSX RR Bridge
Bridge Abutment
Guard Rail
Ditch
5/1/08=0005=wet, rain
Alcohol involvement
Lost consciousness
45
2/11/07=2210=snow/ice, snow
Pavement slippery
V1 lost control, turned sideways,
V2 struck V1 in rear
V1 went into ditch
40
3/26/07=0920=wet, rain
Driver inattention
42
3/11/09=1345 Wet Rain
Reaction to uninvolved vehicle
32
12/09/09=0828 Snow/ ice
Pvmt slippery/ US speed
33
2/26/08=2355 Slush snow
Animal Action/Pvmt slippery
44
duck
1/05/10=1100 Wet cloudy
Tr. Cont. disregarded TRUCK
34
12/03/07=1515 Snow/ Ice
Tr. Cont. disregarded TRUCK
30
6/24/08=1554 dry clear
Tr. Cont. disregarded TRUCK
18
7/18/08=1330 dry clear
Tr. Cont. disregarded TRUCK
46
2/05/10=0855 dry clear
Tr. Cont. disregarded TRUCK
49
9/11/10=0230 dry clear
Tr. Cont. disregarded
double Decker BUS
F
2/20/09=0830=snow/ice, snow
Fail to keep right
48
1/26/07=0625 snow/ ice
Tr. Cont. disregarded
driver inattention TRUCK
60
9/18/08=1515 dry clear
Tr. Cont. disregarded TRUCK
54
10/11/08=0745 dry clear
Tr. Cont. disregarded TRUCK
51
11/24/06=1655 dry clear
Tr. Cont. disregarded TRUCK
38
10/19/06=1430 dry clear
Driver inattention TRUCK
37
3/03/08=0845 wet cloudy
Tr. Cont. disregarded TRUCK
35
2/22/07=0800 dry clear
Tr. Cont. disregarded TRUCK
41
9/01/07=0945 dry clear
Dr. inexper./ FTY ROW TRUCK
43
5/13/10=1800 dry cloudy
Driver inattention TRUCK
64


Sheet 6 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010
Accident is outside the study period
Indicates a Fatality
F
Route 370
Route 370
Water
2/21/08=2040=dry, cloudy
Unsafe lane change
50
10/14/08=1508=dry, cloudy
Animal action
52
Goose
5/13/10=1800=dry, cloudy
Fell asleep
65
ditch
8/16/10=1233=dry, clear
V1
Unsafe speed
Struck V2, then V4
66
V2 struck ditch.
Driver 2 Died
POI
V4 + sign
V1
struck
ditch
V4
Struck V1
POI
V1 + V4
V3
Went west to avoid
V1+ V2 collision
V2
POI
V1 + V2
V1
Engine
Block
ditch


370 3303 1166
370 3303 1167
N
Sheet 7 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010
Accident is outside the study period
ditch
8/17/10=1955=dry, clear
Animal action
67
Animal
4/10/07=0520=wet, cloudy
React to uninvol veh
54A
Water


370 3303 1168
370 3303 1169
370 3303 1170
370 3303 1171
370 3303 1172
Water Pond
Decorative Stone Pond
Light pole
Route 370
Parked Car
1/6/10=1800=snow/ice, snow
Lane use improper
58
7/28/06=2350=dry, clear
Alcohol
React to uninvol veh
56
12/19/10=2120=dry, cloudy
Lane use improper
69
5/30/2010=0800=dry, clear
Animal action
68
Deer
Ditch
12/17/08=0840=slush, cloudy
Pavement slippery
Unsafe speed
55
1/12/08=0255=dry, clear
Alcohol
Unsafe speed
57
ditch
Airborne
tree
11/28/2008=2259=dry, cloudy
Alcohol
(Struck guide rail while being pulled over by NYS PD)
59
Guide Rail
N
Sheet 8 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010
Accident is outside the study period


370
3303
1173
370
3303
1174
Overhead
Sign Bridge
Water
Pond
53
9/8/08=1202=dry, clear
Lost consciousness
Stone
Bridge
Water
Pond
Route 370
Water
Pond
Overhead
Sign Bridge
N
Sheet 9 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010


From Old
Liverpool and
Buckley Rd
Overhead
Sign Bridge
Bridge
370
3303
1175
Route 370
61
4/26/08=1300=dry, clear
Hood flew open
To Rt 81
South and
Carousel Mall
Route 370
To Rt 81
South and
Carousel
Mall
N
Sheet 10 Of 10
Collision Diagram
Rt 370 Onondaga Parkway
6/1/06 to 3/31/10
WL TSJ 12/2010

Attachment 4: Existing and Future Traffic Volumes and Level of Service

Existing and Forecast (No Build) Traffic Volumes AM Peak Period			
Year	**AADT**	**DHV**	**DDHV**
Route 370 – Old Liverpool Road to I-81 Interchange			
Existing (2010)	23,200	2,320	1,700
ETC (2017)	24,800	2,480	1,820
ETC+10 (2027)	27,100	2,720	1,990

Directional Distribution = 73% (EB) / 27% (WB)
Daily Trucks = 3%*

Existing and Forecast (No Build) Traffic Volumes PM Peak Period			
Year	**AADT**	**DHV**	**DDHV**
Route 370 – Old Liverpool Road to I-81 Interchange			
Existing (2010)	23,200	2,380	1,620
ETC (2017)	24,800	2,550	1,730
ETC+10 (2027)	27,100	2,790	1,900

Directional Distribution = 32% (EB) / 68% (WB)
Daily Trucks = 3%*

*This figure consists of all vehicles with more than 2 axles or more than 4 tires. Due to the presence of the low bridge, vehicles over 10'-9" are directed to Old Liverpool Road.

Definitions:
AADT: Average Annual Daily Traffic.
DHV: Design Hour Volume. The hourly volume used for the design of the project. It represents the approximately 30th highest hourly volume of the year.
DDHV: Directional Design Hour Volume. This is the 30th highest hourly volume, counting only traffic moving in the peak direction (eastbound during AM peak and westbound during PM peak).
ETC: Estimated time of completion, the year construction is currently scheduled to be completed. Depending on the alternative(s) pursued, the actual year may vary.

Level of Service

HCS+ software was used to calculate the Highway Level of Service (LOS). Level of Service is a qualitative measure of a highway's operations with grades ranging from "A" (best) to "F" (worst). The LOS for multi-lane highways is based on vehicle density. The chart indicates the LOS in the peak direction – westbound during the PM Peak and eastbound during the AM Peak.

Table 3
Multi-Lane Highway Design Year Level of Service

YEAR	AM Peak	PM Peak
Existing (2010)	B	B
ETC (2017)	C	B
ETC+10 (2027)	C	C

An LOS C corresponds to a density ranging from 18-26 pc/mi/ln (passenger cars per mile per lane).

The Level of Service at an intersection is based on delay, with a grade "A" representing least delay and "F" representing most delay.

Turning movements at the intersections within the projects limits vary considerably based on season, weather and park events. During the off-season, turning movements are low as traffic consists primarily of commuters and other through-traffic. During a weekend summer day or special park event, turning movements can be heavy. The Onondaga Lake Park entrance and Sainte Marie among the Iroquois entrance operate well (LOS B or better) under most time periods with capacity periods expected only for brief intervals on a few days each year.

Attachment 5: Safety Enhancements Considered

	Alternative	Status	Comments	Additional Information on Page ..
1	Cut down trees/brush to improve visibility of signs	completed	Completed Sep. 2010	---
2	Install "Your Speed is XX mph" Trailer	completed	Installed Nov. 2010	38
3	Enhanced speed enforcement	completed	Onondaga County Sheriff increased enforcement Nov. 2010	39
4	Cut down trees/brush that obstruct view of bridge	completed	Completed Mar. 2011	40
5	Improve directional signing for Regional Transportation Center	implement	To be done in Spring 2011	41
6	Install CARDS (centerline rumble strips)	implement	To be installed Spring/Summer 2011	47
7	Add “Low Bridge Ahead” pavement markings	implement	To be installed Spring/Summer 2011	48
8	Install CCTV video cameras	implement	Installed one Jan. 2011, remaining two in Summer 2011	49
9	Over-Height Vehicle Detection and Warning System	implement	To be installed Summer 2011	51
10	Install Dynamic Message Signs (DMS)	implement	Combine with Over-Height Vehicle Detection System	56
11	Exclude commercial vehicles (trucks/buses) from Parkway	on going	Seeking community input	59
12	Upgrade/Replace signs on Parkway and approaches	on going	Dependent on commercial vehicle exclusion	85
13	Install signs and/or flashing beacons on bridge	discarded	May cause information overload	87
14	Install Transverse Rumble strips	discarded	Questionable effectiveness; noise and Parkway Sundays event concerns	88
15	Add strobes to flashing warning lights	discarded	Not allowed under new traffic control standards	89
16	45 mph Year Round Speed Reduction	discarded	Based on 85th percentile speeds, need increased enforcement	90
17	Install CB Radio Transmitter with low bridge message	discarded	Remote monitoring violates FCC rules	92
18	Change highway designation from Parkway to Street or Road	discarded	Not an effective countermeasure	94
19	Install Flexible Reflectorized Delineators	discarded	Highway maintenance problems	95
20	Install retro-reflective coated panels on bridge	discarded	Materials unavailable	96

Install "Your Speed is XX mph" Trailer

Suggestion:

Install a "Your Speed is Trailer" along the Onondaga Lake Parkway.

Introduction:

A "Your Speed is Trailer" would be installed along the Onondaga Lake Parkway in an attempt to reduce vehicle speed. This device would measure and display vehicle speed for motorists as the pass by the Trailer.

Background:

- The Region has one "Your Speed is Trailer" that has mainly been used for work zones and school zones. This trailer is moved around to various locations throughout the year.
- A "Your Speed is Trailer" tends to be more effective when first installed and becomes less effective over time as motorists become accustomed with its location. Moving the "Your Speed is Trailer" to different locations and directions of travel would be a more effective use of the device than a permanent location.

Recommendation:

- The recommendation of the Region is to install the "Your Speed is Trailer" along the Onondaga Lake Parkway in an effort to reduce speed. The effectiveness of this device will try to be maximized by moving it to different locations along the Parkway and throughout the region as necessary. The "Your Speed is Trailer" was installed near the east end of the Parkway for westbound motorists on November 2, 2010.

Enhanced Speed Enforcement

Suggestion:

Enhance speed enforcement along the Onondaga Lake Parkway.

Introduction:

We have received comments that improving Police enforcement is needed along the Onondaga Lake Parkway to reduce vehicle speeds and make the Parkway a safer roadway.

Background:

- The majority of the Onondaga Lake Parkway is located in the Town of Salina with a very small section at the west end in the Village of Liverpool and a very small section at the east end in the City of Syracuse. This section of roadway is typically patrolled and enforced by the Onondaga County Sheriff's Department.
- At the November 2, 2010 meeting with the Onondaga Traffic Safety Advisory Board a representative of the NYSDOT discussed the concerns on the Onondaga Lake Parkway associated with improving enforcement and the general issue of distracted driving. As a follow up on this issue the Onondaga County Sheriff's Office said they would include the Parkway as a location under their STEP Grant to focus enforcement efforts on the Parkway. The Selective Traffic Enforcement Program (STEP) is a funding initiative to law enforcement to target individual traffic safety issues such as speed, aggressive driving and red light running in high crash corridors.

Recommendation:

- The Region encourages and supports the Onondaga County Sheriff's Office in improving the enforcement along the Parkway and with utilizing the STEP Grant to assist in their enforcement efforts. Immediately after the November 2, 2010 meeting, the Sheriff's patrols were observed on the Parkway and have been observed numerous times in the weeks that followed.

Cut Down Trees/Brush @ CSX Bridge

Suggestion:

Remove brush on the southeast quadrant of the CSX Bridge.

Introduction:

It has been suggested to remove the vegetation on the southeast quadrant of the CSX Bridge to improve the visibility of the bridge for westbound motorists.

Background:

- There is an area of vegetation between the roadway and the RR tracks on the south side of the roadway. This vegetation is mainly shrub growth with some ash trees that are about 12" in diameter. The combination of the horizontal curvature of the roadway and this vegetation partially obscures the southern portion of the truss bridge for westbound motorists.
- The sight distance to the bridge for westbound motorists is approximately 1,700 feet. However from the distance of approximately 1,700 feet to approximately 1,000 feet only the northern half of the bridge is visible. The entire bridge is visible at approximately 700 feet. With the proposed vegetation removal the visibility of the entire bridge will be increased to approximately 1,700 feet.
- This vegetation is located on County Park land and CSX's Right of Way. Approval has been obtained from SHPO, the County and CSX to remove this vegetation.

Recommendation:

- The recommendation of the Region is to remove this vegetation to improve the visibility of the bridge for westbound motorists. Removal was completed by State maintenance forces on March 8, 2011.

Improve Directional Signing for the Regional Transportation Center

Suggestion:

Replace the legends "Transportation Ctr" and "Regional Transportation Center" on existing directional signs along roadways leading to the RTC with the legend "Bus & Train Station".

Introduction:

It has been suggested that motorists unfamiliar with the Syracuse area may not realize the RTC serves as the bus and train station for long distance bus carriers and passenger trains making stops in Syracuse, as the generic term "transportation" can have numerous meanings. It is believed that changing the legend on the directional signs to read "Bus & Train Station" could reduce the potential for motorists to lose their way while looking for the area's bus and train station. Similarly, it could also reduce the potential for long distance bus drivers to lose their way en route to their stop in Syracuse, thereby reducing the potential for those drivers from mistakenly traveling along Onondaga Lake Parkway.

Background:

The existing directional signing for the RTC consists of signs with varying legends depending on their location.

- On mainline I-81 northbound, there is one sign for the RTC located in advance of the off-ramp to Exits 23, 24A and 24B with the legend

Regional
Transportation
Center
EXIT 23

- On mainline I-81 southbound, there is also one sign for the RTC, located in advance of the off-ramp to Exits 23A, 23B and 22. However, this sign includes two other destinations and, in the interest of keeping the sign at a reasonable width, the word "Regional" is not included. The legend displayed is

Regional Market
Alliance Bank Stadium
Transportation Ctr
EXIT 23A

- A similar follow-up sign is located on the long off-ramp from I-81 southbound to Exits 23A, 23B and 22 that directs motorists to take the next right (Exit 23A) on that multi-exit ramp. The legend displayed is

Regional Market
Alliance Bank Stadium
Transportation Ctr
NEXT RIGHT

- In addition, where the Exit 23 off-ramp from I-81 northbound and the Exit 23A off-ramp from I-81 southbound intersect Park St and Hiawatha Blvd respectively, as well as at other locations along Park St, Hiawatha Blvd, N Salina St and Bear St, smaller directional signs are posted with the legend,

WILLIAM F WALSH **REGIONAL** **TRANSPORTATION** **CENTER**

All of the signs described above also include standard MUTCD bus and train symbol plaques mounted underneath the main sign panel. In addition, each location of the smaller signs on the ramps and streets include a directional arrow plaque mounted underneath.

Recommendation:

Replace the existing directional signs described above with new signs displaying the legend “Bus & Train Station” in place of the current “Transportation Ctr” or “Regional Transportation Center” legend. In addition, install a new sign on I-81 northbound, near the triple exit to Park St/Hiawatha Blvd (Exit 23), Route 370/Onondaga Lake Parkway (Exit 24A) and Old Liverpool Rd (Exit 24B), advising drivers destined for the bus and train station to take the “next right” in this three lane exit.

Figures I-A thru I-D show the existing signs along with proposed replacement signs using the legend “Bus & Train Station”. The proposed signs also incorporate the bus and train symbol plaques within the main panel.

Note that the recommendation to change the sign legends received approval from the Central New York Regional Transportation Authority (CNYRTA), the agency responsible for the RTC, in a meeting held on December 16, 2010, with CNYRTA’s John Renock.

The recommended signing changes will be added to an ongoing construction contract, D261319, PIN 380536, as an order-on-contract with the work taking place in early 2011.

Existing Sign on Mainline I-81 Northbound

Proposed Replacement Sign on Mainline I-81 Northbound

Proposed New Sign on Mainline I-81 Northbound At Three Lane Exit to Park St., Old Liverpool Rd. and Onondaga Lake Parkway

Figure I-A

Existing Sign on Mainline I-81 Southbound

Proposed Replacement Sign on Mainline I-81 Southbound

Figure I-B

Existing Sign on I-81 Southbound Off-Ramp
To Hiawatha Blvd, Bear St, and Carousel Center Dr

Proposed Replacement Sign on I-81 Southbound Off-Ramp
To Hiawatha Blvd, Bear St, and Carousel Center Dr

Figure I-C

Existing Sign at Various Intersections
Along Park St, Hiawatha Blvd, and Bear St

Proposed Replacement Sign at Various Intersections
Along Park St, Hiawatha Blvd, and Bear St

Figure I-D

Install Centerline Audible Roadway Delineators (CARDS)

Suggestion:

Proposal to place Centerline Milled in Audible Roadway Delineators (CARDS) along the 4'-0" flush median of Route 370 to provide advance warning to alert motorists who may have inadvertently crossed over the centerline into the opposing lane of traffic.

Introduction:

CARDS are used in alerting drowsy or distracted motorists who drift out of their lane and across the centerline. The installation of CARDS is anticipated to reduce crossover head on and sideswipe accidents along Onondaga Lake Parkway.

Background:

- A recent Engineering Instruction (EI 10-030) was developed by the Department to provide criteria for the implementation of CARDS. The Onondaga Lake Parkway meets the criteria of median type, length, speed, volume and pavement width set forth in EI 10-030. The installation of CARDS along this section of roadway is encouraged as stand alone work under EI 10-030.
- CARDS have been found to be an effective safety device on undivided high-speed roads. Where they are used, CARDS have the potential to significantly reduce head-on and opposite direction sideswipe collisions with some studies showing up to a 64% reduction in these types of accidents.
- The CARDS would be placed along both outside edges of the 4'-0" flush median directly beneath the yellow full barrier lines. The placement of the CARDS underneath the full barrier centerline markings will improve the visibility of the centerline pavement markings, particularly in wet-nighttime conditions by providing a more vertical reflective surface.
- The limits for the placement of the CARDS will be from the Saint Marie Entrance to the point where the roadway splits at the Park Street Ramp.

Recommendation:

- The recommendation of the Region is placement of the Centerline Milled in Audible Roadway Delineators (CARDS) from the Saint Marie Entrance to the split at the Park St. Ramp. This would provide a low cost safety device to reduce the number of head on and opposite direction sideswipe accidents along the Onondaga Lake Parkway. It is anticipated the CARDS will be placed under the I-81 Resurfacing Project PIN 350168 in the spring or summer of 2011.

Add Pavement Markings -"Low Bridge Ahead"

Suggestion:

Proposal to place epoxy white lettering to read "Low Bridge Ahead" along both the northbound and southbound lanes of Route 370 to provide advance warning to motorists of low bridge clearance.

Introduction:

The markings will be used in alerting distracted motorists of the low clearance under the CSX Bridge.

Background:

- The markings are to be placed in the center of the travel lanes located a sufficient distance in advance of the bridge crossing and shall read "Low Bridge Ahead" in the direction of travel. It is intended these markings will compliment the existing overhead/ground mounted signs in providing a more comprehensive safety approach in alerting distracted drivers of large trucks/over height commercial vehicles of the restricted bridge clearance.
- Placements of pavement markings were chosen along straight tangent sections as far as possible from existing overhead or ground mounted signs and in areas least likely to experience slippery pavement conditions from blowing and drifting snow. It is anticipated the areas where pavement markings are placed will not be subject to braking or deceleration by vehicles.
- Installation of markings will be placed in accordance with the 2009 Federal MUTCD. Comments regarding the use of the "Low Bridge Ahead" pavement marking were received from FHWA (W. Scott Wainwright) as forwarded from NYSDOT Main Office on 10/25/2010. Comments received by FHWA noted acceptability in using pavement markings to reinforce sign message low bridge clearance. Recommendation by Region would be to limit placement to only 3 lines of text "Low Bridge Ahead" as indicated in the 2009 Federal MUTCD Sect. 3B.20 paragraph 06 – "word or symbol markings should not exceed 3 lines of information".
- Placement of text will be centered in both lanes of northbound and southbound Route 370 well in advance of the CSX Railroad Bridge to alert distracted motorists of the existing bridge height restriction. The locations would also coincide with gravel pull off areas to allow trucks to safely pull over and turn around.

Recommendation:

- The recommendation of the region would be placement of the pavement markings "Low Bridge Ahead" along both sides of the parkway well in advance of the bridge. This would provide a low cost safety improvement to alert distracted motorists of the low bridge clearance ahead. It is anticipated that initial placement of the markings will be included under the I-81 resurfacing contract in the spring of 2011. Markings would be refreshed under the tri-annual epoxy special pavement marking project.

Install CCTV Video Cameras at Three Locations

Suggestion:

Install closed circuit TV Video Cameras on the Parkway and send the video feeds to the Region 3 Transportation Management Center and the Onondaga County 911 Center.

Introduction:

In an effort to better monitor weather conditions and assist the Onondaga County 911 Center in responding to incidents, the Department proposes to install three cameras and associated equipment on NYS Route 370/Onondaga Lake Parkway.

Background:

- There has been a need identified for traffic cameras along NYS Route 370/Onondaga Lake Parkway so that the Department's Transportation Management Center (TMC) can better monitor weather and roadway conditions and assist the Onondaga County 911 Center in response to incidents.
- During the winter months when the lake is frozen and the wind is blowing from the southwest, there are sometimes problems with drifting snow on the western end of the Parkway. During springtime, there can be issues with flooding on the eastern and center portions of the Parkway if there is a big snowmelt or a large rain event. Cameras placed at these locations where problems are known to occur would allow the TMC to monitor the roadway conditions. If any problems were detected, then the TMC could alert motorists to the unusual surface conditions ahead and, when necessary, inform the Onondaga East Residency and/or the Onondaga County 911 Center of the problem.
- The Onondaga County 911 Center has requested our assistance in better pinpointing where accidents occur on this stretch of highway and to identify what emergency response equipment needs to be deployed. Currently they receive multiple phone calls when an event occurs, however, the information given by passing motorists often varies and sometimes conflicts. These cameras will give the 911 Center a visual of the accidents so that they can respond more efficiently and quickly.
- The Department has identified three locations where these cameras should be installed to address the background issues noted above. The camera on the eastern end and the camera on the center section of the Parkway can be installed on existing flashing beacon sign structures and can be tied into the power already supplied to those sign structures. The camera on the western end of the Parkway will require the installation of a new 20 foot high luminary pole and approximately 14 feet of conduit to tie into an existing power source. The three recommended camera locations have already passed the required historical, cultural and environmental reviews.

Recommendation:

- The Region recommends that the three cameras, as discussed above, be installed using State forces. The camera on the western end of the parkway has already been installed by the Regional Traffic Signal Crew using equipment from existing inventory, and is transmitting video to the TMC and the Onondaga County 911 Center as of January 6, 2011. There is a need to purchase new microwave radios in order to install the other two cameras because we do not have the necessary equipment in inventory. The plan is to purchase the necessary equipment over the next couple of months, and to have the

Regional Traffic Signal Crew install the two new cameras. It is anticipated that this work will be accomplished in the summer of 2011.

Over-Height Vehicle Detection and Warning System

Suggestion:

Install an Over-Height Vehicle Detection System (OHVDS) on State Route 370, Onondaga Lake Parkway to detect vehicles that are too tall for the low vertical clearance of the railroad bridge, and to warn the operators of these vehicles so they can stop before reaching the railroad bridge.

Introduction:

Several OHVDS alternatives have been suggested for installation on the Onondaga Lake Parkway. These designs range from simple "headache bars" and chains mounted at the height of the bridge, to more elaborate laser or visible-red/infrared detectors that trigger either an audible or visual warning. This report will review the pros and cons of these different alternatives and make a recommendation on which alternative the Department should pursue.

Background:

The CSX railroad bridge over State Route 370, the Onondaga Lake Parkway, has an actual minimum vertical clearance of 11 ft. 9 in. with a posted vertical clearance of 10 ft. 9 in. This bridge has a history of being struck by vehicles taller than the available vertical clearance. These bridge hits have continued to occur despite the numerous vertical clearance postings, warning signs and flashing beacons that give advance warning of the low vertical clearance. It is for this reason that the Department is considering a system that can detect vehicles that are too tall to go under the bridge and direct the operators of those vehicles to stop before they hit the bridge.

One option for detecting vehicles that are too tall is to install a lightweight bar or chains over the road that have the same vertical clearance as the bridge. At first glance this alternative looks appealing because of its low cost, current use at numerous locations, and potential to alert the driver of the vertical clearance issue. However, upon closer look, there are many negative issues associated with this solution. To begin with, most locations where headache bars or chains are used are low speed locations where damage to the vehicle striking the bar is negligible, and the potential for the negative consequence, such as startling the operator or injuring occupants of the vehicle is minimal. On a higher speed facility like the Onondaga Lake Parkway, striking a bar or chain could cause damage to the vehicle striking the device. In addition, the bar or chain could break from the impact, and either become a projectile or dangle over the roadway at a dangerous height. Another concern is that the operator of the vehicle that hits one of these devices may become startled and do something dangerous and unexpected resulting in secondary accidents. Due to the potential for negative consequences, installing headache bars, chains or other hanging devices is not a safety enhancement the Department will consider implementing.

The other option to be considered is a non-obtrusive option that includes detecting the over-height vehicle and using that detection device to trigger a warning system designed to alert the operator of the vehicle to stop before reaching the railroad bridge. This

option can then be broken down further into two sub-components: detection systems and warning systems.

Detection Systems:

There are several types of non-obtrusive OHVDS systems on the market today. The types of detectors that will be considered here use laser, infrared and visible red technologies. All of these technologies were researched and it was found that they could be falsely tripped under certain conditions. These conditions include heavy rain, dense fog, heavy snow, salt spray covering the lenses, and snow adhering to and covering the lenses of the detectors. It is clear that no matter which option is chosen, maintenance of the system will be an issue that has to be considered and addressed prior to installation.

Of the three detector system technologies, the laser technology seems to be affected most by the weather conditions and is also susceptible to problems with alignment and vibration, so it will not be considered further. The visible red and infrared detectors both have issues with the sun at various angles, but when the two technologies are combined into a single detector, this limitation can be overcome. In an effort to increase the reliability of the detector and reduce the incidence of a false positive detection, the over-height detector can be combined with an inductive loop vehicle detector in the road so that both detectors have to be tripped simultaneously in order for an over-height warning to be registered. The inductance loop may be able to be fine tuned so that it only detects larger vehicles. However this adjustment is delicate, and there is no guarantee that it can be done.

Warning Systems:

There are a wide variety of warning systems that can be deployed to alert an operator that his or her vehicle has tripped the OHVDS. These warning systems include, but are not limited to; flashing beacons, loud air horns, variable message signs, gates, and a three color traffic signal. These warning systems can be combined to provide a very robust warning system. However, just how robust the warning system is and what combination of systems is ultimately deployed will depend largely on the accuracy, dependability and maintainability of the OHVDS that is installed.

Flashing beacons and air horns are effective in getting an operator's attention, but they need to be used in conjunction with either a static sign or a variable message board to warn the operator of the low vertical clearance. Since there are already static signs with flashing beacons on the Parkway, it is anticipated that flashing beacons used in conjunction with variable message signs would provide a different type of warning device and be more effective at alerting the driver. Air horns could be effective at grabbing the operator's attention, but there are many residential houses and apartments in the area, and as such, will not be considered for use.

Since there are no opportunities for a vehicle to exit the parkway, or any locations for a large vehicle to be fully off of the traveled way, it will be difficult for a large vehicle to safely stop and get turned-around prior to reaching the bridge.

A three-color traffic signal could be very effective in getting an over-height vehicle safely to a stop. The signal would stay green until an over-height vehicle is detected. The OHVDS would send a message to the signal controller letting it know that an over-height vehicle has been detected. The controller would then cycle the signal to yellow and then to red. The signal would then stay in an all red mode for a set period of time before cycling back to green, ensuring that everyone stops prior to the bridge. This would have the added benefit that even if the operator of the over-height vehicle still proceeded under the bridge, that at least it would be a low speed impact with minimal damage to the bridge and vehicle.

A gate system similar to a railroad gate could also be used to bring vehicles to a stop prior to the bridge. The OHVDS would send a signal to the gate causing the gate to lower when an over-height vehicle has been detected. The gate would remain in the down position for a predetermined length of time to bring all of the vehicles on the Parkway to a stop before the gate lifts allowing traffic to proceed.

The disadvantage of both the traffic signal and the gate system is that all vehicles would be required to stop on a high speed roadway, introducing the risk of rear-end collisions. This risk may be reduced some with the appropriate automatic use of the variable message signs in advance of the signal or gate to warn of the stopped condition. However, neither three-color traffic signal nor the gate system will be considered for deployment until it is proven that the OHVDS is very accurate and does not falsely detect over-height vehicles.

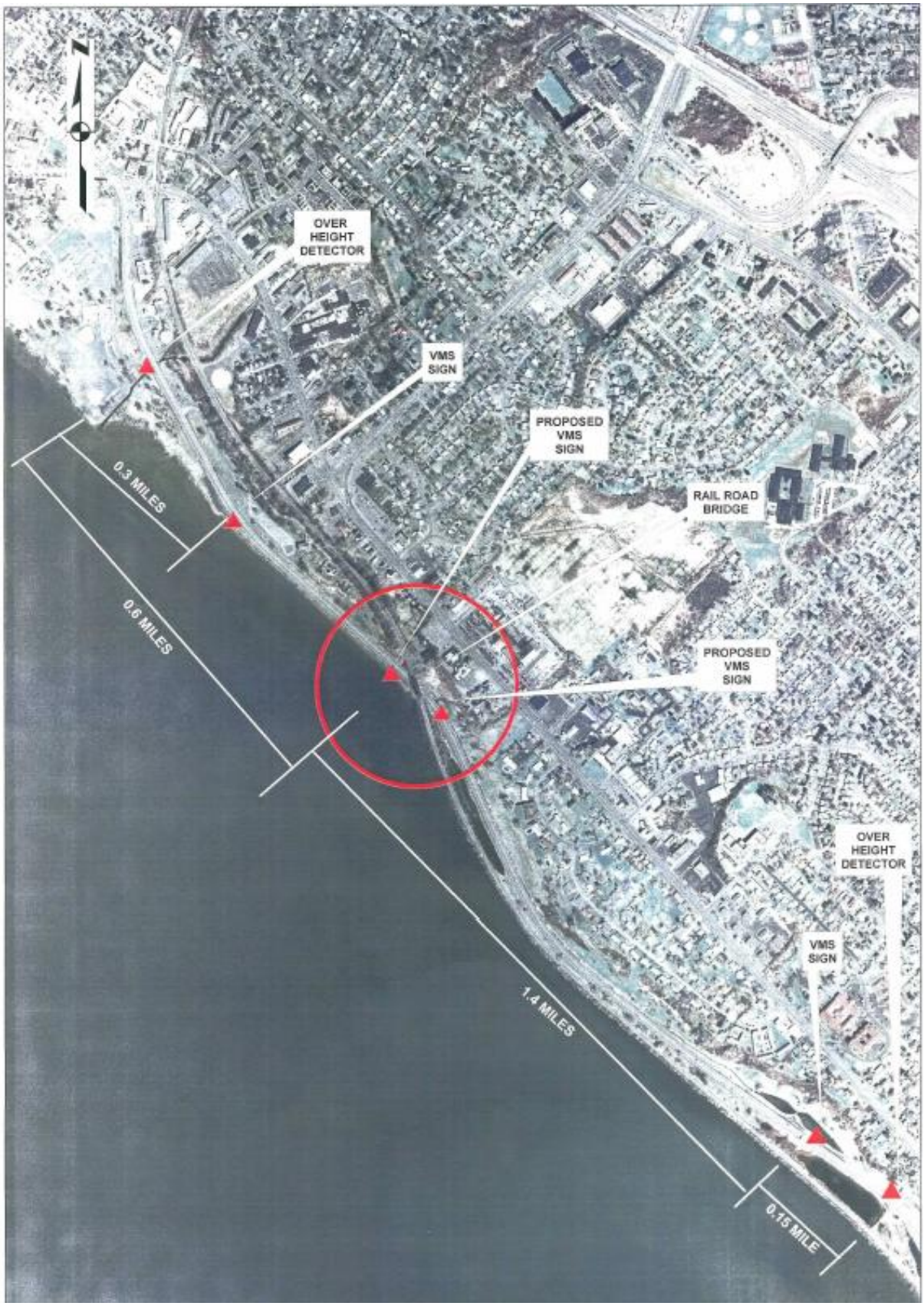
Recommendation:

The Region recommends that two over-height vehicle detectors using the combined infrared and visible red technologies be installed in conjunction with inductive loop vehicle detectors. These detectors, when tripped, will send a signal to portable variable message signs via microwave radio to turn on a predetermined warning message and flashing yellow beacons attached to the sign. On the western end of the Parkway the OHVD will be installed near the driveway to the Onondaga Lake Park and the culvert over Bloody Brook; and on the eastern end the OHVD will be mounted on the existing sign structure that has the low bridge clearance warning sign and flashing beacons. The two existing portable DMS signs on the Parkway will be replaced with new signs and flashing beacons that are compatible with the OHVD system. Two additional OHVD compatible portable DMS and flashing beacons will be placed one per direction near the railroad bridge. The proposed detector and sign locations are shown on the drawing on page 55.

A communication device will also be installed to alert the Department's Region 3 Transportation Management Center (TMC), and the Onondaga County 911 center, every time that the detector is activated. This will allow the Department and local emergency responders to better react to over-height vehicles on the Parkway and to better assess the performance and reliability of the detection system. If this system is proven to be accurate and reliable, then upgrades to a three color traffic signal or gate system could be considered under a future project, should the need exist.

Prior to any devices being installed in the field, the Department will develop a maintenance and operations plan for this system. This plan needs to specify who is responsible for maintaining the physical components of the system, who is responsible for any lane closures that may be required to maintain the system, the anticipated response times to fix a system malfunction, and the method and frequency of testing the system to ensure that it is functioning properly.

It is anticipated that this system will be installed in mid 2011 as an order-on-contract under the ongoing signal requirements project, D261263.


N
OVER HEIGHT DETECTOR
VMS SIGN
PROPOSED VMS SIGN
RAIL ROAD BRIDGE
0.3 MILES
0.6 MILES
PROPOSED VMS SIGN
OVER HEIGHT DETECTOR
VMS SIGN
1.4 MILES
0.15 MILE

Install Dynamic Message Signs

Suggestion:

Use Dynamic Message Signs (DMS) to provide advance warning to motorists of the Low Bridge Clearance.

Introduction:

The Parkway was carefully reviewed for intent of finding the best locations to place DMS signs to supplement the existing warning signs to give additional warning for the low vertical clearance. Attention was also given to how DMS signs could be integrated with the operation of over-height vehicle detectors that are being considered for installation on the Parkway; any DMS installed on the Parkway should be placed so that they can effectively work in conjunction with the over-height vehicle detectors.

Background:

From our review of the Parkway five possible DMS placement alternatives were identified and considered for possible implementation. These five alternatives are:

1. Signs placed near the beginning of the Parkway at either end.
2. Use the existing portable DMS signs that are on the Parkway.
3. Place a new sign halfway between the bridge and the existing signs.
4. Supplement the existing flashing beacon signs with small DMS on the sign face that light up the bridge height to make it more visible.
5. Place a DMS signs close to the bridge.

The advantages and disadvantages of each alternative were each considered separately. A conclusion on the feasibility of installing the DMS signs for each alternative was reached from a review of these advantages and disadvantages. A listing of the five alternatives along with their advantages, disadvantages, and conclusions are as follows:

1. Signs placed near the beginning of the Parkway at either end.

a. **Advantage:** Of all the five scenarios, this one gives the most advanced warning to motorists.

b. **Disadvantage:** There are existing signs with flashing beacons near these locations already, so it may have a minimal impact. In addition, signs placed at these locations would either be located before, or too close to the proposed over-height vehicle detectors to be of any use for this application.

c. **Conclusion:** Do not place DMS signs at these locations.

2. Use the existing portable DMS signs that are on the Parkway.

a. **Advantage:** It would provide an additional warning sign, and it is the quickest and least expensive option to implement. The existing DMS are in good locations to be used in conjunction with the over-height vehicle detectors, however, they would need to be replaced so that a message and possibly flashing beacons attached to the signs could be automatically triggered by the detectors. Even though the signs

would need to be replaced, the existing signs could be used in other locations around the Region and would result in a net benefit.

b. **Disadvantage:** If the existing signs are used as a warning for the low vertical clearance, then they would not be available to use for purposes such as warnings for roadway conditions, reduced speed limit, traffic impacts associated with Park events such as Lights on the Lake, Parkway Sundays, etc. It is anticipated that once cameras are placed on the parkway that these signs will be used more often to warn motorists of existing traffic conditions, flooding and drifting snow.

c. **Conclusion:** Do not use DMS at the existing locations as permanent warning signs for the low vertical clearance. However, the signs at these locations should be upgraded so that they can be used in conjunction with the over-height vehicle detectors. The signs could then be used as needed to alert motorists to unusual roadway conditions, but these messages could be over-ridden and flashing beacons activated when the over-height vehicle detectors are triggered by an over-height vehicle.

3. Place a new sign halfway between the bridge and the existing signs.

a. **Advantage:** Placing an additional DMS sign at this location would give some additional advanced warning to the motorists.

b. **Disadvantage:** There are fixed signs with flashing beacons already installed at these general locations, so it may have a minimal impact. DMS signs are subject to mechanical and electrical malfunctions where the permanent signs are much less likely to be rendered ineffective from these problems. As a final point, these would not be the preferred locations for use in conjunction with the over-height vehicle detectors.

c. **Conclusion**: Do not place DMS at these locations.

4. Supplement the existing flashing beacon signs with small DMS on the sign face that light up the bridge height to make it more visible.

a. **Advantage:** This option could be implemented fairly inexpensively using the existing signs and power, and it may give some added emphasis.

b. **Disadvantage:** Electronic signs are subject to electrical and mechanical malfunctions, and if the signs malfunctioned, we would lose the important information pertaining to the height of the bridge. Also, there is no benefit in implementing this alternative in conjunction with the over-height vehicle detectors.

c. **Conclusion:** Do not use DMS to supplement the existing sign face.

5. Place DMS signs close to the bridge.

a. **Advantage:** Placing a DMS sign at this location would give one final waning of the bridge height at the bridge itself. We also think that this is a good location for a DMS sign with flashing beacons to be used in conjunction with the over-height vehicle detectors.

b. **Disadvantage:** Of the five alternatives, this one gives the least amount of advance warning. Another big disadvantage is that there

is no nearby source of existing power, so the signs would have to be run on solar power. This can create some maintenance issues in the winter months.

c. **Conclusion** – The Region recommends that DMS signs be placed at these locations and that they should be used in conjunction with over-height vehicle detectors. Consideration needs to be given to maintaining these signs in the winter months and a permanent source of power should be installed for these signs under a future contract.

Recommendation:

The Region recommends that alternatives 2 and 5 be considered for implementation in conjunction with an over-height vehicle detection system. It is anticipated that this system will be installed in mid 2011 as an order-on-contract under the ongoing signal requirements project D261263.

Exclude Commercial Vehicles from Parkway

Suggestion:

Exclude all commercial traffic from the Parkway. Direct these vehicles to Old Liverpool Road.

Introduction:

As a result of comments received from the public and the October 5, 2010 Onondaga County Legislature resolution, the New York State Department of Transportation conducted a traffic study to determine the traffic impacts of having all commercial vehicles excluded from Onondaga Lake Parkway (Route 370) and diverted to Old Liverpool Road. This proposed exclusion would be from the section of Route 370 between the ramps to Old Liverpool Road and the intersection of Old Liverpool Road/Oswego Street/First Street.

The overall objective of excluding all commercial vehicles on the Onondaga Lake Parkway (Route 370) is to increase the safety of the traveling public. Since the majority of vehicles over 10' 9" are commercial vehicles, the implementation of this exclusion will reduce the potential number of bridge hits by motorists who may be unaware of their actual vehicle height. If implemented and enforced, motorists driving commercial vehicles will no longer be able to legally travel on Onondaga Lake Parkway (Route 370), and would then have to use alternate routes such as Old Liverpool Road to reach their destination.

The processes and methodology used to determine the effects of this proposed commercial vehicle exclusion on Onondaga Lake Parkway (Route 370), assumptions made, results and recommendations from the analysis are described in the following sections.

Existing conditions

Onondaga Lake Parkway (Route 370) is an urban principal arterial and major commuter route that passes through the County's Onondaga Lake Park. It is a four lane roadway (two lanes in each direction) with a speed limit of 55 mph and seasonal speed limit of 45 mph during the winter months within the Town of Salina, except for the western 0.3 miles in the Town, which has a speed limit of 30 mph. The speed limit of the Onondaga Lake Parkway is 30 mph within the Village of Liverpool.

Currently, commercial traffic is allowed to utilize the Onondaga Lake Parkway section of Route 370 to travel between Liverpool and Syracuse. The only existing exclusions are in place for Tractor Trailers (Title 15, Chapter VIII, Subchapter A, Part 6031, Sections 6031.09 (a) and 6031.31 (a) of the NYCRR), and for vehicles over 10 feet 9 inches (Vehicle & Traffic Law – Posted Height Restriction). There are numerous warning devices and signs (both ground mounted and overhead) stating the clearance in advance of the railroad bridge on both approaches of the parkway.

Old Liverpool Road is a four lane roadway (two lanes in each direction) that runs parallel with Onondaga Lake Parkway. The speed limit is 40 mph in the Town of Salina and 30 mph in the Village of Liverpool. The specific area studied was from the Old Liverpool Road and Buckley Road intersection to the Onondaga Lake Parkway (Route 370) at Old Liverpool Road intersection.

A. Existing Traffic Volumes

Traffic volume data was counted and collected from various resources to obtain the existing traffic volumes on Onondaga Lake Parkway and Old Liverpool Road for the traffic study. In addition to traffic volume data, vehicle classification data was collected on the Onondaga Lake Parkway to determine the various types of vehicles that currently travel on Onondaga Lake Parkway. As a result of this collected data, it was found that Onondaga Lake Parkway has a 2010 AADT of 23,200 vehicles; with nearly evenly split directionally volumes. Old Liverpool Road has a 2006/2007 AADT of 13,300 to 16,900 vehicles. Intersection turning movement traffic volumes were also collected at the following signalized intersections on Old Liverpool Road:

Onondaga Lake Parkway (Route 370) at Old Liverpool Road
Old Liverpool Road at Electronics Parkway
Old Liverpool Road at Eynsford Road
Old Liverpool Road at Beechwood Avenue and Lakeview Terrace
Old Liverpool Road at Buckley Road

Based on the traffic volumes collected at these intersections, the peak hours were determined to be:

AM Peak Hour:	7:15 AM – 8:15 AM
PM Peak Hour:	4:30 PM – 5:30 PM

Peak hour and directional AADT volumes are summarized in **Table 1**. The existing intersection turning movement counts for Old Liverpool Road for these peak periods can be seen in **Figure 1 and 2**.

B. Level of Service Analysis

A Level of Service (LOS) analysis was performed using Synchro 7 software. The above mentioned intersections along Old Liverpool Road were analyzed using the existing traffic volumes for both morning and evening peak periods. The results of this Level-of-Service Analysis, shown in **Table 4**, indicate that all of the signalized intersections operate at acceptable Level of Service for the existing conditions during the morning peak period.

During the evening peak period, the two intersections in the corridor that have the worst Level of Service are the Onondaga Lake Parkway (Route 370) at Old Liverpool Road intersection and Old Liverpool Road at Electronics Parkway intersection. The Onondaga Lake Parkway (Route 370) at Old Liverpool Road intersection has an overall LOS of E, with an average delay per vehicle of 64.3 seconds. This is largely due to the intersection

being very large and complex, complex signal operation and phasing, close proximity to nearby intersections and railroad crossing, and heavy approach volumes on multiple approaches. The Old Liverpool Road at Electronics Parkway intersection has an overall LOS of D, with an average delay per vehicle of 47.6 seconds. Although the traffic volumes are low to average for an intersection of this size, the split-phase signal operation of this intersection for all the approaches has a negative impact on the Level of Service at this intersection.

C. Accident History

There are an average of two accidents per year involving a vehicle over 10' 9" hitting the CSX railroad bridge over Onondaga Lake Parkway (Route 370). Intersection Accident Rates and Linear Accident Rates were calculated for Old Liverpool Road as part of this traffic study. The Intersection Accident Rates exceed the statewide averages for similar intersections for all the signalized intersections within the study area. The calculated rates varied between one to three times the statewide average rates. However, the Old Liverpool Road at Eynsford intersection only exceeds the statewide average by 2 percent.

The calculated Linear Accident Rate for Old Liverpool Road is 3.16 Acc/MVM, which is below the statewide average of 4.04 Acc/MVM. The accident rates are summarized in **Table 5**, and also shown in **Figure 5**.

D. Travel Time

On December 22, 2010 and December 27, 2010, travel time data was collected for both the Old Liverpool Road and Onondaga Lake Parkway (Route 370) corridor. The start and end points for this data collection were the center of the Onondaga Lake Parkway (Route 370) at Old Liverpool Road intersection (Heid's Corners) and the Little Creek Bridge on Park Street (just west of the railroad bridge over Park Street). Generally, the Onondaga Lake Parkway was the faster route, averaging approximately 3.5 minutes in either direction for both the morning and evening peak period. Old Liverpool Road took approximately 1 – 1.5 minutes longer during the morning peak period, and approximately 1.5 - 2 minutes longer during the evening peak period depending on the direction traveled. This travel time data is summarized in **Tables 6 and 7.**

E. Railroad Crossing - Old Liverpool Road

There is a one-track railroad crossing on Old Liverpool Road located just east of the intersection of Route 370 and Old Liverpool Road. This crossing is on the Montreal Secondary Branch line located at RR Milepost 4.2 and is owned and operated by CSXT.

The flasher and gate apparatus is equipped with cantilevered automatic flashing light signals and gates with the activation of the devices controlled by a grade crossing predictor, model GCP 3000. The railroad warning system (flashers and gates) are interconnected with the highway signal at the intersection of Old Liverpool Road and Route 370 under a "simultaneous preemption". The crossing is not equipped with LED lights. There are also sidewalk gates to accommodate and provide warning to pedestrian traffic. The current flasher and gate apparatus, with cantilevers were installed in 1992

and are in fair condition. The crossing surface is asphalt with rubber Epflex flanges. This surface was reconstructed in 1993 and is also in fair condition.

It has been determined that an Administrative Law Hearing is not required for diverting additional commercial vehicles onto Old Liverpool Road and across this railroad crossing.

F. Gap Analysis

Gap analysis data was collected at the Old Liverpool Road and Town Garden Drive intersection on March 1, 2011, and at the Old Liverpool Road and Greenpoint Avenue intersection on March 3, 2011. These intersections were chosen by Onondaga County Department of Transportation, and appear to be representative locations for volumes and traffic flow on Old Liverpool Road. Town Garden Drive appears to be representative of any of the numerous unsignalized intersecting roads and driveways on the western section of Old Liverpool Road between the Onondaga Lake Parkway and Electronics Parkway. Vehicles taking a left onto the Old Liverpool Road from Town Garden Drive are destined eastbound toward Syracuse, while right turning vehicles would be destined westbound toward Liverpool. Greenpoint Avenue appears to be representative of any of the numerous unsignalized intersecting roads and driveways on the eastern section of Old Liverpool Road between Electronics Parkway and Buckley Road. Vehicles taking a left onto the Old Liverpool Road from Greenpoint Avenue are destined eastbound toward Syracuse, while right turning vehicles would be destined westbound toward Liverpool. The total number of gaps for each exiting turning movement for both intersections can be seen in **Table 8** below.

TABLE 8
NUMBER OF GAPS FOR EXITING VEHICLES

	AM PEAK HOUR (gaps/hour)		PM PEAK HOUR (gaps/hour)	
	LEFT	RIGHT	LEFT	RIGHT
Old Liverpool Road at Town Garden Drive	95	97	71	143
Old Liverpool Road at Greenpoint Avenue	77	110	74	107

In addition to collecting gap data, existing traffic volumes were collected on March 10, 2011 to determine the current number of vehicles exiting the side road at the Old Liverpool Road and Town Garden Drive intersection and the Old Liverpool Road and

Greenpoint Avenue intersection. The traffic volumes for each exiting turning movement for both intersections can be seen in **Table 9** below.

TABLE 9 VEHICLES EXITING SIDE ROAD						
	AM PEAK HOUR (vehicles/hour)			PM PEAK HOUR (vehicles/hour)		
	LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL
Old Liverpool Road at Town Garden Drive	54	29	83	23	19	42
Old Liverpool Road at Greenpoint Avenue	13	5	18	6	12	18

The existing traffic volumes indicate that the Old Liverpool Road at Town Garden Drive intersection have higher exiting volumes onto Old Liverpool Road than the Old Liverpool Road at Greenpoint Avenue intersection. In addition, these volumes were the highest during the morning peak hour.

Besides collecting traffic volumes and the number of gaps at both locations, the duration of each gap was timed and organized into categories. The gap data collected for all the turning movements for both locations can be seen in **Tables 10 and 11.** In order to quantify the number and duration of the gap times to a theoretical maximum volume capacity, each gap range was given a vehicle equivalent which represented the maximum number of vehicles that can exit together for a given gap time range. The vehicular equivalent for each peak hour represents the maximum number of turning vehicles that can exit if all the gap time was fully utilized. The calculated theoretical maximum number of turning vehicles for each peak period for both intersections can be seen in the following table, **Table 12**.

TABLE 12 MAXIMUM NUMBER OF EXITING VEHICLES				
	AM PEAK HOUR (veh. equivalent/hour)		PM PEAK HOUR (veh. equivalent/hour)	
	LEFT	RIGHT	LEFT	RIGHT
Old Liverpool Road at Town Garden Drive	281	303	157	412
Old Liverpool Road at Greenpoint Avenue	192	511	177	489

In comparing the number of gaps utilized for both intersections, we assumed the number of left turn gaps as the total number of available gaps within the given peak hour. This is a conservative analysis because the number of gaps for left turns is smaller than for the right turns, but longer in duration since vehicles need to find a gap in both directions at the same time to make a left turn. During the morning peak hour at Town Garden Drive,

83 exiting vehicles used 64 out of the 95 available gaps (67%); and during the evening peak hour, 42 exiting vehicles used 37 out of the 71 available gaps (52%). During the morning peak hour at Greenpoint Avenue, 18 exiting vehicles used 17 out of the 77 available gaps (22%); and during the evening peak hour, 18 exiting vehicles used 18 out of the 74 available gaps (24%). Generally, 75% or more of the exiting vehicles from the side roads at both locations turned with no other turning vehicles.

Additionally, the existing traffic volumes on the unsignalized side streets/driveways at both studied intersections are significantly lower than the calculated maximum number of turning vehicles that the gaps will accommodate. This indicates that not all the existing gaps are being utilized to their full capacity, and either more volume can be accommodated on the side roads/driveways or that more gap time is available to use for turning vehicles.

Based on existing traffic volumes, gap analysis, and observations in the field, there are more than sufficient gaps in traffic to accommodate the existing vehicles entering and exiting the driveways and unsignalized intersections along Old Liverpool Road. The existing three color signals along Old Liverpool Road provide good vehicular platooning to allow vehicles to turn easily and safely. The traffic volumes and gap usage tabulation are summarized in **Table 13**.

Proposed conditions:

A. Objective

As stated in the introduction section, the objective of this traffic study is to determine the traffic impacts of having all commercial vehicles excluded from Onondaga Lake Parkway (Route 370) and diverted to Old Liverpool Road. This proposed exclusion would be from the section of Route 370 between the ramps to Old Liverpool Road and the intersection of Old Liverpool Road/Oswego Street/First Street. The purpose of excluding all commercial vehicles on the Onondaga Lake Parkway (Route 370) is to increase the safety of the traveling public. Since the majority of vehicles over 10’ 9” are commercial vehicles, the implementation of this exclusion will reduce the potential number of bridge hits by motorists who may be unaware of their actual vehicle height. If implemented and enforced, motorists driving commercial vehicles will no longer be able to legally travel on Onondaga Lake Parkway (Route 370), and would then have to use alternate routes such as Old Liverpool Road to reach their destination.

B. Vehicle Classification and Volumes

The proposed commercial vehicle exclusion would encompass any vehicle with a commercial registration, including some pickups, some vans, box trucks, dump trucks, some buses, tractor trailers, and other various vehicles. Generally, these vehicles are classified as Vehicle Class F3 through F13. To establish the impact of the proposed commercial vehicle exclusion, a classification count was taken on Onondaga Lake Parkway in November 2010.

In addition to this classification count, manual counts of Vehicle Class F3 vehicles were taken on November 18, 2010 based on the license plates of the vehicles to determine the percentage of F3 vehicles that are considered commercial vehicles. Based on these traffic counts, it is estimated that two-thirds of the Vehicle Class F3 vehicles using the Parkway have commercial registrations. The results of these manual counts are summarized in the **Table 2**.

As a result of collected volume and classification data, **Table 3** below indicates the number of commercial vehicles that will be impacted by excluding commercial vehicles from using Onondaga Lake Parkway (Route 370):

TABLE 3			
VEHICLES IMPACTED BY COMMERCIAL VEHICLE EXCLUSION			
	AM PEAK HOUR (vehicles/hour)	PM PEAK HOUR (vehicles/hour)	24 HOURS (vehicles/day)
Eastbound (Liverpool to Syracuse)	155	96	1538
Westbound (Syracuse to Liverpool)	76	151	1462
Total	231	247	3000

In addition to the above table, more details about the traffic volumes and AADT for both Onondaga Lake Parkway (Route 370) and Old Liverpool Road collected as a result of this study can be seen in **Table 1**.

C. Assumptions and Trip Distribution

In order to maintain a conservative analysis in the study, it is assumed that all commercially registered vehicles are diverted from the Parkway to Old Liverpool Road. Therefore, this traffic study reflects a "worse case" scenario on the proposed conditions and impacts to Old Liverpool Road as a result of the proposed commercial vehicle exclusion. Realistically, the surrounding highways in the area provide motorists options for alternative routes to get to their destination that are impacted by this exclusion. In addition to this, there may be some commercially registered vehicles that continue to utilize the Parkway despite the exclusion.

The commercial vehicle volumes on the Onondaga Lake Parkway, as shown on **Table 3**, were subtracted from the Onondaga Lake Parkway volumes and distributed to the through movements for the five studied intersections along Old Liverpool Road. The proposed traffic volumes for Old Liverpool Road at all the studied intersections can be seen in **Figures 3 and 4**.

D. Level of Service Analysis

A Level of Service (LOS) analysis was performed for the proposed conditions at all the studied intersections along Old Liverpool Road. The proposed conditions involves having all the diverted commercial traffic volumes added to the existing peak hour traffic

volumes for both the morning and evening peak periods. These proposed volumes were analyzed and the results of this Level-of-Service Analysis can be seen in **Table 4.**

In comparing the existing conditions with the proposed conditions in Table 4, there is only a minor degradation in Level of Service and increase in delay as a result of diverting the commercial vehicles from Onondaga Lake Parkway to Old Liverpool Road. These results were also supported by our field observations on the Old Liverpool Road during the traffic data collection for the study. Our field observations indicated that there is a large amount of reserve capacity not being utilized on Old Liverpool Road. The only two intersections of concern are Onondaga Lake Parkway (Route 370) at Old Liverpool Road and Old Liverpool Road at Electronics Parkway during the evening peak period.

The Onondaga Lake Parkway (Route 370) at Old Liverpool Road intersection will have an overall LOS of E, with an average delay per vehicle of 58.0 seconds. This Level of Service is similar to that of the existing condition scenario because the same volume is traveling through this intersection under both conditions. The differences only being that the volume is entering/exiting the intersection from different approaches.

The Old Liverpool Road at Electronics Parkway intersection will have an overall LOS of E, with an average delay per vehicle of 61.7 seconds. As stated earlier, the poor Level of Service is largely attributable to intersection geometry and the split-phase signal operation of this intersection for all the approaches. The increase in intersection delay is only 14.1 seconds and will have minimum impact for motorists traveling through this signalized intersection. There may be a possibility to improve the overall operations at this intersection by reconfiguring the approach lanes at this intersection to better match the turning movement traffic volumes. This lane reconfiguration may also provide an opportunity to improve the signal phasing of the intersection and remove the split phase signal operation on Old Liverpool Road.

The signal timing was reviewed in an effort to improve the operation of the signalized intersections under the proposed conditions. The only two intersections where signal timing were optimized and provided a better Level of Service were:

Old Liverpool Road at Buckley Road (AM and PM Peak)
Old Liverpool Road at Electronics Parkway (PM Peak)

The results of the Level of Service for the Proposed Conditions with optimized signal timing can be seen in the third and sixth columns in **Table 4**.

E. Accident Analysis

It is anticipated that the diversion of all commercial vehicles from Onondaga Lake Parkway to Old Liverpool Road will result in a slight increase in the number of accidents along Old Liverpool Road as a result of the additional volume of traffic. It is also anticipated that the diversion of commercial vehicles will have a slight decrease in the number of overall accidents along Onondaga Lake Parkway as a result of a decrease in traffic volume. With the exclusion of commercial vehicles along Onondaga Lake Parkway drivers of commercial vehicles would not have to make a decision on entering

the Parkway based on vehicle height as all commercial vehicles would be excluded. This exclusion is anticipated to have a substantial reduction in the number of bridge hits by commercial vehicles.

F. Gap Analysis

In order to be conservative, the proposed conditions were analyzed assuming the worst-case scenario where all commercial vehicles being excluded from the Onondaga Lake Parkway use Old Liverpool Road as their alternate route. It is more than likely that some of the excluded vehicles will use alternate routes other than Old Liverpool Road. If all of the excluded commercial vehicles on Onondaga Lake Parkway use Old Liverpool Road, then we anticipate that the traffic volumes on the westerly end (near Town Garden Drive) on Old Liverpool Road will increase approximately 30% and 18% for the morning and evening peak hours, respectively. On the easterly end on Old Liverpool Road (near Greenpoint Avenue), we anticipate traffic volumes to increase approximately 23% and 17% for the morning and evening peak hours, respectively.

While we anticipate that these volume increases will reduce the duration and/or number of available gaps, the existing three color signals along Old Liverpool Road will continue to provide sufficient gaps to allow vehicles to complete their turns from the side streets/driveways easily and safely. The gap analysis results indicate that both the number and the duration of the gaps are not being fully utilized under existing conditions. Additionally, the existing traffic volumes on the unsignalized side streets/driveways are significantly lower than the calculated maximum number of turning vehicles that the gaps can accommodate. This suggests that either more volume can be accommodated on the side roads/driveways or that more gap time is available to use for turning vehicles on both the easterly and western end of Old Liverpool Road.

Based on the existing and projected traffic volumes, gap analysis, and observations in the field, there will continue to be sufficient gaps on Old Liverpool Road if the commercial vehicle exclusion is implemented on the Onondaga Lake Parkway. Although there will be additional traffic added to the through moments on Old Liverpool Road, we anticipate minimal impacts on vehicles turning from unsignalized side roads and driveways as a result of the proposed Onondaga Lake Parkway commercial vehicle exclusion.

Results and Recommendation:

It appears from the results of the traffic study, there will be a minimum impact to traffic on Old Liverpool Road if all commercial vehicles on Onondaga Lake Parkway (Route 370) were to be excluded. Our recommendation is to exclude all commercial vehicles from using Onondaga Lake Parkway (Route 370). Since the majority of vehicles over 10’ 9” are commercial vehicles, the implementation of this exclusion will reduce the potential number of bridge hits by motorists who may be unaware of their actual vehicle height. Implementation of excluding commercial vehicles from using Onondaga Lake Parkway (Route 370) will involve, but not be limited to:

- Evaluating potential environmental impacts in accordance with State Environmental Quality Review (SEQR) Act regulations, along with other impacts.
- Writing an official order excluding commercial vehicles on the Onondaga Lake Parkway (Route 370)
- Installation, removal, and replacement of signs on and in advance of Onondaga Lake Parkway (Route 370) and Old Liverpool Road. This will involve both ground mounted and overhead signs.

Table 1
Traffic Volumes and AADT's

Onondaga Lake Parkway
west end @ Heid's Corners

	Existing	Proposed
2010 AADT EB	11500	
2010 AADT WB	11700	
2010 AADT Total	23200	
2010 AM Peak Volume EB	1850	1695
2010 AM Peak Volume WB	588	512
2010 AM Peak Volume Total	2438	2207
2010 PM Peak Volume EB	940	844
2010 PM Peak Volume WB	1827	1676
2010 PM Peak Volume Total	2767	2520
2010 24hr Commercial Volume EB	1538	0
2010 24hr Commercial Volume WB	1462	0
2010 24hr Commercial Volume Total	3000	0
2010 AM Peak Commercial EB	155	
2010 AM Peak Commercial WB	76	
2010 AM Peak Commercial Total	231	
2010 PM Peak Commercial EB	96	
2010 PM Peak Commercial WB	151	
2010 PM Peak Commercial Total	247	

Old Liverpool Road
east end @ Buckley Rd

	Existing	Proposed
2006 AADT EB	6200	
2006 AADT WB	7100	
2006 AADT Total	13300	
2010 AM Peak Volume EB	537	692
2010 AM Peak Volume WB	484	560
2010 AM Peak Volume Total	1021	1252
2010 PM Peak Volume EB	594	690
2010 PM Peak Volume WB	826	977
2010 PM Peak Volume Total	1420	1667

Old Liverpool Road
west end @ Heid's Corners

	Existing	Proposed
2007 AADT EB	8500	
2007 AADT WB	8400	
2007 AADT Total	16900	
2010 AM Peak Volume EB	475	630
2010 AM Peak Volume WB	297	373
2010 AM Peak Volume Total	772	1003
2010 PM Peak Volume EB	564	660
2010 PM Peak Volume WB	708	859
2010 PM Peak Volume Total	1272	1519

Table 2

Onondaga Lake Parkway EB (towards Syracuse) Counted 11/18/10

Vehicle Class F3 - Pickups, Vans, RV's

	7:00 - 7:30	7:30 - 8:00	8:00 - 8:30	8:30 - 9:00	Total	%
Commercial	41	31	52	28	152	67.3
Passenger	23	25	16	10	74	32.7
Total	64	56	68	38	226	

	11:00 - 11:30	11:30 - 12:00	12:00 - 12:30	12:30 - 1:00	Total	%
Commercial	30	29	25	20	104	75.4
Passenger	9	11	5	9	34	24.6
Total	39	40	30	29	138	

	2:30 - 3:00	3:00 - 3:30	3:30 - 4:00	4:00 - 4:30	Total	%
Commercial	32	30	45	17	124	65.6
Passenger	8	19	22	16	65	34.4
Total	40	49	67	33	189	

	All time periods above	Total	%
Commercial		380	68.7
Passenger		173	31.3
Total		553	

Onondaga Lake Parkway WB (towards Liverpool) Counted 11/18/10

Vehicle Class F3 - Pickups, Vans, RV's

	7:00 - 7:30	7:30 - 8:00	8:00 - 8:30	8:30 - 9:00	Total	%
Commercial	22	21	21	22	86	67.2
Passenger	12	11	14	5	42	32.8
Total	34	32	35	27	128	

	11:00 - 11:30	11:30 - 12:00	12:00 - 12:30	12:30 - 1:00	Total	%
Commercial	21	35	27	31	114	76.5
Passenger	4	7	10	14	35	23.5
Total	25	42	37	45	149	

	2:30 - 3:00	3:00 - 3:30	3:30 - 4:00	4:00 - 4:30	Total	%
Commercial	31	39	33	42	145	60.7
Passenger	23	25	24	22	94	39.3
Total	54	64	57	64	239	

	All time periods above	Total	%
Commercial		345	66.9
Passenger		171	33.1
Total		516	

Summary for both directions of travel

	All time periods above, both directions	Total	%
Commercial		725	67.8
Passenger		344	32.2
Total		1069	

Based on this, assume 2/3 of F3 vehicles are Commercial.

Table 4
Level of Service Summary
Old Liverpool Road Corridor
Proposed Parkway Commercial Vehicle Diversion

Intersection		2010 AM Existing Conditions	2010 AM Proposed Conditions	2010 AM Proposed Conditions Optimized Timings	2010 PM Existing Conditions	2010 PM Proposed Conditions	2010 PM Proposed Conditions Optimized Timings
Onondaga Lake Pkwy / Old Liverpool Rd / Oswego St / First St (Heid's Corners)		**B(17.2)**	**B(16.3)**	**B(16.3)**	**E(64.3)**	**E(58.0)**	**E(58.0)**
EB Right (1st Street)		D(41.2)	D(39.3)	D(39.3)	E(66.9)	E(66.9)	E(66.9)
NB Left (Onondaga Lk Pkwy)		C(27.4)	C(25.6)	C(25.6)	F(86.2)	D(51.5)	D(51.5)
SB Left (Oswego Street)		C(21.1)	C(22.6)	C(22.6)	E(64.9)	F(126.3)	F(126.3)
SB Through (Oswego Street)		B(10.1)	A(8.4)	A(8.4)	A(4.4)	A(4.1)	A(4.1)
NW Left (Old Liverpool Rd)		D(50.1)	D(51.0)	D(51.0)	F(256.9)	F(256.9)	F(256.9)
NW Through (Old Liverpool Rd)		A(8.8)	A(9.2)	A(9.2)	C(29.5)	D(37.8)	D(37.8)
Old Liverpool Rd / Electronics Pkwy / Rite Aid Driveway		**C(27.8)**	**D(38.0)**	**D(38.0)**	**D(47.6)**	**E(75.2)**	**E(61.7)***
SE Left/Through/Right		D(37.0)	D(42.1)	D(42.1)	D(49.2)	D(52.4)	E(75.2)*
NW Left/Through/Right		C(22.3)	C(32.8)	C(32.8)	D(46.8)	F (110.8)	E(59.5)*
NE Left/Through/Right (Rite Aid Driveway)		A(0.0)	A(0.0)	A(0.0)	D(52.7)	D(53.4)	F(83.0)*
SW Left/Through (Electronics Pkwy)		C(34.6)	D(52.3)	D(52.3)	E(75.1)	F (80.8)	F(80.2)*
SW Right (Electronics Pkwy)		A(7.2)	A(9.3)	A(9.3)	B(14.6)	B(14.3)	B(19.2)*
Old Liverpool Rd / Eynsford Rd / Liverpool Dentist Center Driveway		**A(6.5)**	**A(6.4)**	**A(6.4)**	**A(5.2)**	**A(5.1)**	**A(5.1)**
SE Left/Through/Right		A(6.2)	A(6.0)	A(6.0)	A(4.3)	A(4.1)	A(4.1)
NW Left/Through/Right		A(6.0)	A(5.7)	A(5.7)	A(5.0)	A(5.1)	A(5.1)
NE Left/Through/Right (Dentist Driveway)		A(0.0)	A(0.0)	A(0.0)	B(19.0)	C(20.8)	C(20.8)
SW Left/Through/Right (Eynsford Rd)		B(12.6)	B(14.9)	B(14.9)	B(13.8)	B(15.1)	B(15.1)
Old Liverpool Road / Beechwood Ave / Lakeview Terr		**A(7.6)**	**A(7.5)**	**A(7.5)**	**A(8.3)**	**A(8.5)**	**A(8.5)**
SE Left/Through/Right		A(5.2)	A(5.7)	A(5.7)	A(6.3)	A(6.9)	A(6.9)
NW Left/Through/Right		A(5.0)	A(5.2)	A(5.2)	A(5.6)	A(6.2)	A(6.2)
NE Left/Through/Right (Lakeview Terr)		B(15.4)	B(15.4)	B(15.4)	B(16.7)	B(16.7)	B(16.7)
SW Left/Through/Right (Beechwood Ave)		C(29.2)	C(29.2)	C(29.2)	C(28.6)	C(28.6)	C(28.6)
Old Liverpool Road / Buckley Road		**B(14.8)**	**B(15.1)**	**B(14.9)***	**B(18.4)**	**B(19.7)**	**B(18.2)***
NW Through		B(10.6)	B(11.0)	B(12.0)*	B(11.7)	B(12.1)	B(14.2)*
SB Through/Right (Buckley Rd)		C(21.4)	C(22.4)	C(20.2)*	C(29.7)	D(35.1)	C(26.3)*

*Optimized signal timings for Old Liverpool/Buckley (AM&PM), and Old Liverpool/Electronics (PM only).

Table 5
Intersection and Linear Accident Rates Summary

Intersection Accident Rates Intersection of Old Liverpool Road with	Calculated Accident Rate (Acc/Mev)		Statewide Accident Rate (Acc/Mev)		Above or Below State Avg?
Oswego St/First St/Onondaga Lake Pkwy	0.54		0.23		Above
Electronics Pkwy/Rite Aid Driveway	0.52		0.38		Above
Eynsford Rd/Liverpool Dentist Center	0.39		0.38		Above
Beechwood Ave/Lakeview Terrace	0.67		0.38		Above
Buckley Road	1.16		0.38		Above

Linear Accident Rate	Calculated Accident Rate (Acc/MVM)		Statewide Accident Rate* (Acc/MVM)		Above or Below State Avg?
Old Liverpool Road	3.16		4.04		Below

*Urban, 4 Lane, Undivided, No control of access

Table 6

Travel Time Runs - AM Peak - 12/22/10

Old Liverpool Road			
Run #	WB	Run #	EB
1	4:50	2	5:12
5	5:28	6	5:02
9	4:56	10	4:22
13	5:35	14	4:13
15	5:08	16	4:31
Average	5:11	Average	4:40

Speed Limit	40 (town)/30 (village)
3 Color Signals	Yes
School Bus Stops	Yes
Centro Bus Stops	Yes

Onondaga Lake Parkway			
Run #	WB	Run #	EB
3	3:36	4	3:37
7	3:31	8	3:25
11	3:29	12	3:32
Average	3:32	Average	3:31

Speed Limit	45 (town)/30 (village)
3 Color Signals	No
School Bus Stops	No
Centro Bus Stops	No

Start Time	7:30 AM
End Time	9:30 AM
Weather	Heavy Overcast/Cloudy
Surface Condition	Damp
Westerly Start/Stop Point	Heid's Corners - Center of Intersection
Easterly Start/Stop Point	Little Creek Bridge (100' N of Railroad bridge over Park Street)

Table 7

Travel Time Runs - PM Peak - 12/27/10

Old Liverpool Road				Onondaga Lake Parkway			
Run #	WB	Run #	EB	Run #	WB	Run #	EB
1	5:18	2	4:40	3	3:41	4	3:36
5	4:49	6	5:20	7	3:43	8	3:28
9	5:45	10	4:31	11	3:34	12	3:35
13	5:43	14	6:38	19	3:33	20	3:39
15	6:25	16	4:59				
17	5:50	18	4:42				
Average	5:38	Average	5:08	Average	3:38	Average	3:35

Speed Limit	40 (town)/30 (village)	Speed Limit	45 (town)/30 (village)
3 Color Signals	Yes	3 Color Signals	No
School Bus Stops	No (not in session)	School Bus Stops	No
Centro Bus Stops	Yes	Centro Bus Stops	No

Start Time	3:00 PM
End Time	6:00 PM
Weather	Cloudy, Windy, Heavy Overcast
Surface Condition	Dry
Westerly Start/Stop Point	Heid's Corners - Center of Intersection
Easterly Start/Stop Point	Little Creek Bridge (100' N of Railroad bridge over Park Street)*

* Note - Signal at Park Street and Carousel Center Dr/Alliance Bank Parkway, just east of the easterly start/stop point, was being manually operated during this study.

Table 10

Intersection Gap Study

Old Liverpool Road @ Town Garden Drive — Left Turns Exiting Town Garden Drive — March 1, 2011

	Gap Time Vehicle Equivalent	8-10 sec x1	11-14 sec x2	15-17 sec x3	18-21 sec x4	22-24 sec x5	25-28 sec x6	29+ sec x7		Total for interval	Total for hour
Morning Peak											
7:15 to 7:30 AM	# of Gaps	9	9	2	1	2	1	3		27	
	# of Vehicles	9	18	6	4	10	6	21		74	
7:30 to 7:45 AM	# of Gaps	4	4	2	3	2	3	2		20	
	# of Vehicles	4	8	6	12	10	18	14		72	
7:45 to 8:00 AM	# of Gaps	7	5	3	1	0	1	3		20	
	# of Vehicles	7	10	9	4	0	6	21		57	
8:00 to 8:15 AM	# of Gaps	8	6	7	2	2	2	1		28	
	# of Vehicles	8	12	21	8	10	12	7		78	
										Total No. of Gap	95
										Total No. of Vehicles	281
Evening Peak											
4:30 to 4:45 PM	# of Gaps	12	4	2	3	0	0	0		21	
	# of Vehicles	12	8	6	12	0	0	0		38	
4:45 to 5:00 PM	# of Gaps	6	5	3	3	2	0	1		20	
	# of Vehicles	6	10	9	12	10	0	7		54	
5:00 to 5:15 PM	# of Gaps	5	3	5	0	1	1	0		15	
	# of Vehicles	5	6	15	0	5	6	0		37	
5:15 to 5:30 PM	# of Gaps	8	4	1	1	1	0	0		15	
	# of Vehicles	8	8	3	4	5	0	0		28	
										Total No. of Gap	71
										Total No. of Vehicles	157

Table 10 - continued

Intersection Gap Study

Old Liverpool Road @ Town Garden Drive | Right Turns Exiting Town Garden Drive | March 1, 2011

	Gap Time Vehicle Equivalent	7-9 sec x1	10-13 sec x2	14-16 sec x3	17-19 sec x4	20-22 sec x5	23-26 sec x6	27-29 sec x7	30+ sec x8	Total for interval	Total for hour
Morning Peak											
7:15 to 7:30 AM	# of Gaps	4	7	2	2	1	3	2	5	26	
	# of Vehicles	4	14	6	8	5	18	14	40	109	
7:30 to 7:45 AM	# of Gaps	4	4	1	2	3	1	2	2	19	
	# of Vehicles	4	8	3	8	15	6	14	16	74	
7:45 to 8:00 AM	# of Gaps	13	7	2	1	1	1	0	1	26	
	# of Vehicles	13	14	6	4	5	6	0	8	56	
8:00 to 8:15 AM	# of Gaps	9	5	6	4	1	1	0	0	26	
	# of Vehicles	9	10	18	16	5	6	0	0	64	
										Total No. of Gap	97
										Total No. of Vehicles	303
Evening Peak											
4:30 to 4:45 PM	# of Gaps	11	6	5	2	3	1	0	4	32	
	# of Vehicles	11	12	15	8	15	6	0	32	99	
4:45 to 5:00 PM	# of Gaps	8	10	4	6	3	2	0	3	36	
	# of Vehicles	8	20	12	24	15	12	0	24	115	
5:00 to 5:15 PM	# of Gaps	14	9	2	2	4	4	3	0	38	
	# of Vehicles	14	18	6	8	20	24	21	0	111	
5:15 to 5:30 PM	# of Gaps	18	8	1	3	4	3	0	0	37	
	# of Vehicles	18	16	3	12	20	18	0	0	87	
										Total No. of Gap	143
										Total No. of Vehicles	412

Table 11

Intersection Gap Study

Old Liverpool Road @ Greenpoint Ave — Left Turns Exiting Greenpoint Ave — March 3, 2011

	Gap Time / Vehicle Equivalent	8-10 sec x1	11-14 sec x2	15-17 sec x3	18-21 sec x4	22-24 sec x5	25-28 sec x6	29+ sec x7		Total for interval	Total for hour
Morning Peak											
7:15 to 7:30 AM	# of Gaps	10	9	5	0	1	0	0		25	
	# of Vehicles	10	18	15	0	5	0	0		48	
7:30 to 7:45 AM	# of Gaps	6	5	4	1	0	2	1		19	
	# of Vehicles	6	10	12	4	0	12	7		51	
7:45 to 8:00 AM	# of Gaps	4	4	3	1	2	0	2		16	
	# of Vehicles	4	8	9	4	10	0	14		49	
8:00 to 8:15 AM	# of Gaps	4	5	5	1	1	1	0		17	
	# of Vehicles	4	10	15	4	5	6	0		44	
										Total No. of Gap	77
										Total No. of Vehicles	192
Evening Peak											
4:30 to 4:45 PM	# of Gaps	7	5	4	2	0	1	0		19	
	# of Vehicles	7	10	12	8	0	6	0		43	
4:45 to 5:00 PM	# of Gaps	7	7	3	2	1	1	0		21	
	# of Vehicles	7	14	9	8	5	6	0		49	
5:00 to 5:15 PM	# of Gaps	5	5	4	0	1	0	1		16	
	# of Vehicles	5	10	12	0	5	0	7		39	
5:15 to 5:30 PM	# of Gaps	5	6	3	2	1	0	1		18	
	# of Vehicles	5	12	9	8	5	0	7		46	
										Total No. of Gap	74
										Total No. of Vehicles	177

Table 11 - continued

Intersection Gap Study

Old Liverpool Road @ Greenpoint Ave | Right Turns Exiting Greenpoint Ave | March 3, 2011

	Gap Time Vehicle Equivalent	7-9 sec x1	10-13 sec x2	14-16 sec x3	17-19 sec x4	20-22 sec x5	23-26 sec x6	27-29 sec x7	30+ sec x8	Total for interval	Total for hour
Morning Peak											
7:15 to 7:30 AM	# of Gaps	6	3	2	2	0	1	1	7	22	
	# of Vehicles	6	6	6	8	0	6	7	56	95	
7:30 to 7:45 AM	# of Gaps	7	2	1	2	1	1	3	10	27	
	# of Vehicles	7	4	3	8	5	6	21	80	134	
7:45 to 8:00 AM	# of Gaps	8	3	2	2	1	1	3	9	29	
	# of Vehicles	8	6	6	8	5	6	21	72	132	
8:00 to 8:15 AM	# of Gaps	7	6	1	0	2	5	0	11	32	
	# of Vehicles	7	12	3	0	10	30	0	88	150	
										Total No. of Gap	110
										Total No. of Vehicles	511
Evening Peak											
4:30 to 4:45 PM	# of Gaps	9	5	1	1	2	3	0	8	29	
	# of Vehicles	9	10	3	4	10	18	0	64	118	
4:45 to 5:00 PM	# of Gaps	6	3	2	2	3	5	1	6	28	
	# of Vehicles	6	6	6	8	15	30	7	48	126	
5:00 to 5:15 PM	# of Gaps	4	3	1	1	0	3	1	9	22	
	# of Vehicles	4	6	3	4	0	18	7	72	114	
5:15 to 5:30 PM	# of Gaps	6	5	1	0	2	3	4	7	28	
	# of Vehicles	6	10	3	0	10	18	28	56	131	
										Total No. of Gap	107
										Total No. of Vehicles	489

Table 13

Summary of Turning Movement Counts and Gap Usage For Side Streets in Gap Analysis

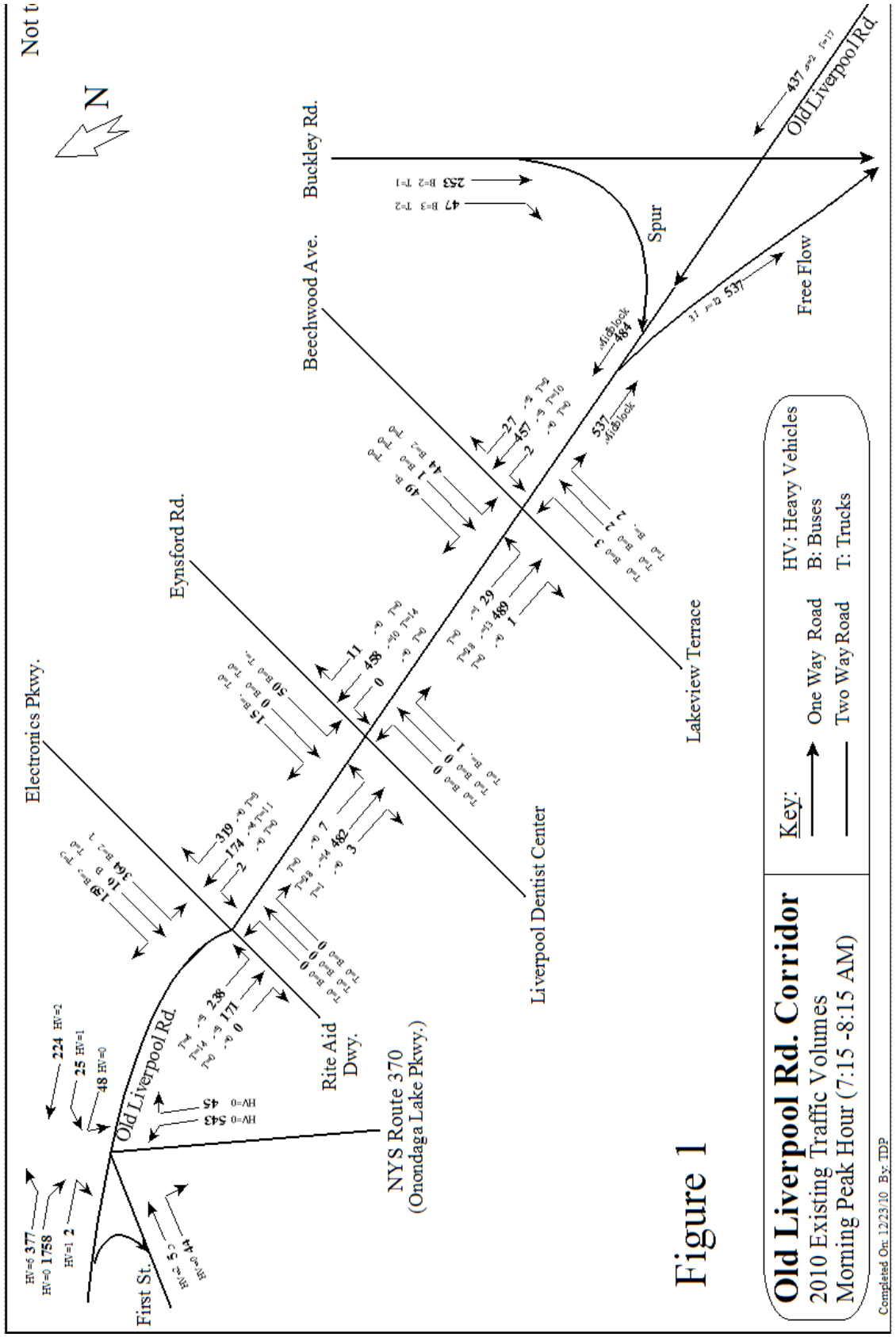
3/10/2011

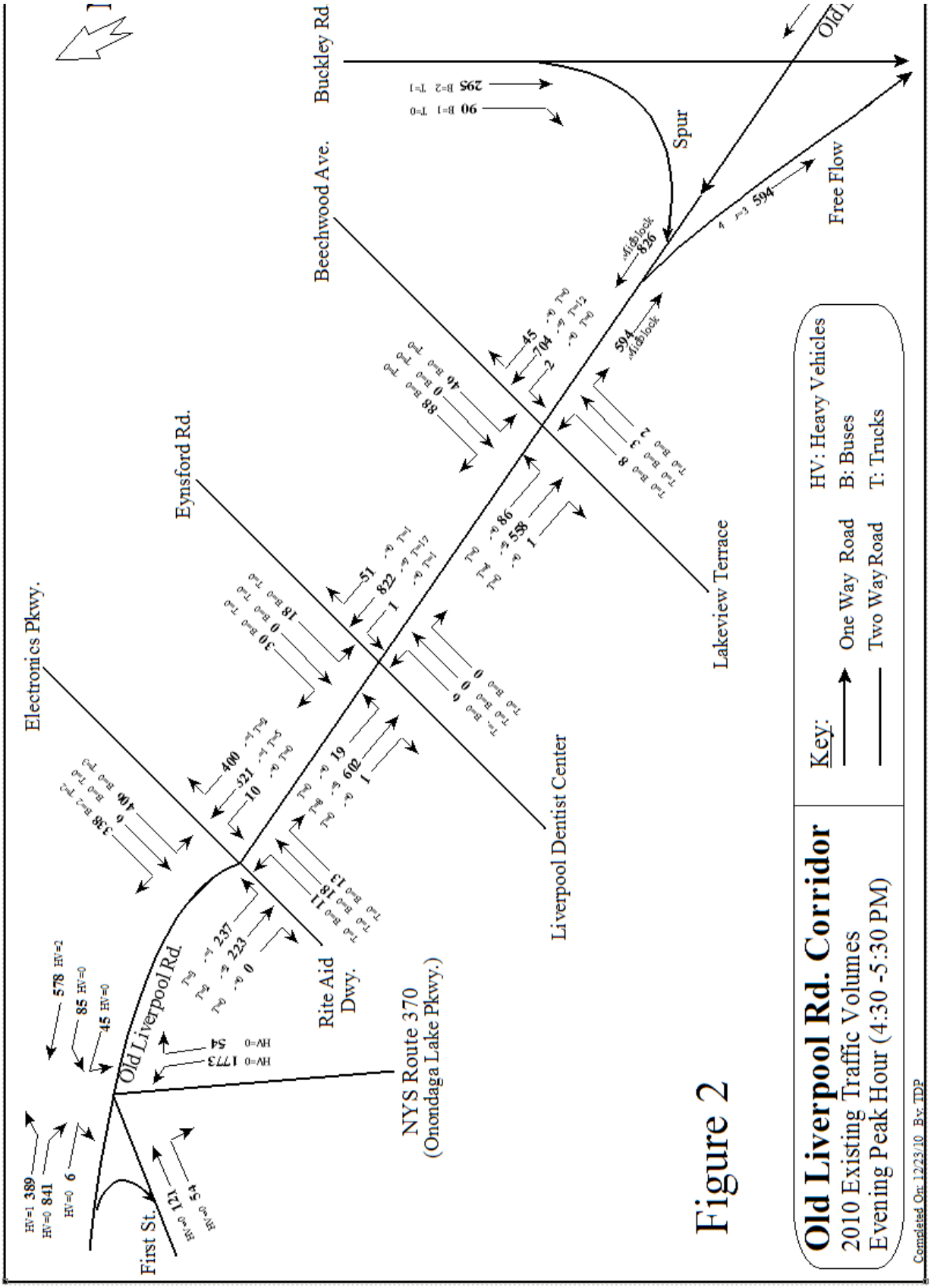
AM Peak Hour 7:15 - 8:15 AM	Vehicles From Side Road			Gap Usage by Side Road (Both Turn Movements) *						Gaps	Total Available Gaps **	%
Intersection	Rights	Lefts	Total	Gap (1 Veh.)	%	Gap (2 Veh.)	%	Gap (3 Veh.)	%	Used		Used
Town Garden Drive @ Old Liverpool Road	29	54	83	48	75.0%	13	20.3%	3	4.7%	64	95	67.4%
Greenpoint Avenue @ Old Liverpool Road	5	13	18	16	94.1%	1	5.9%	0	0.0%	17	77	22.1%

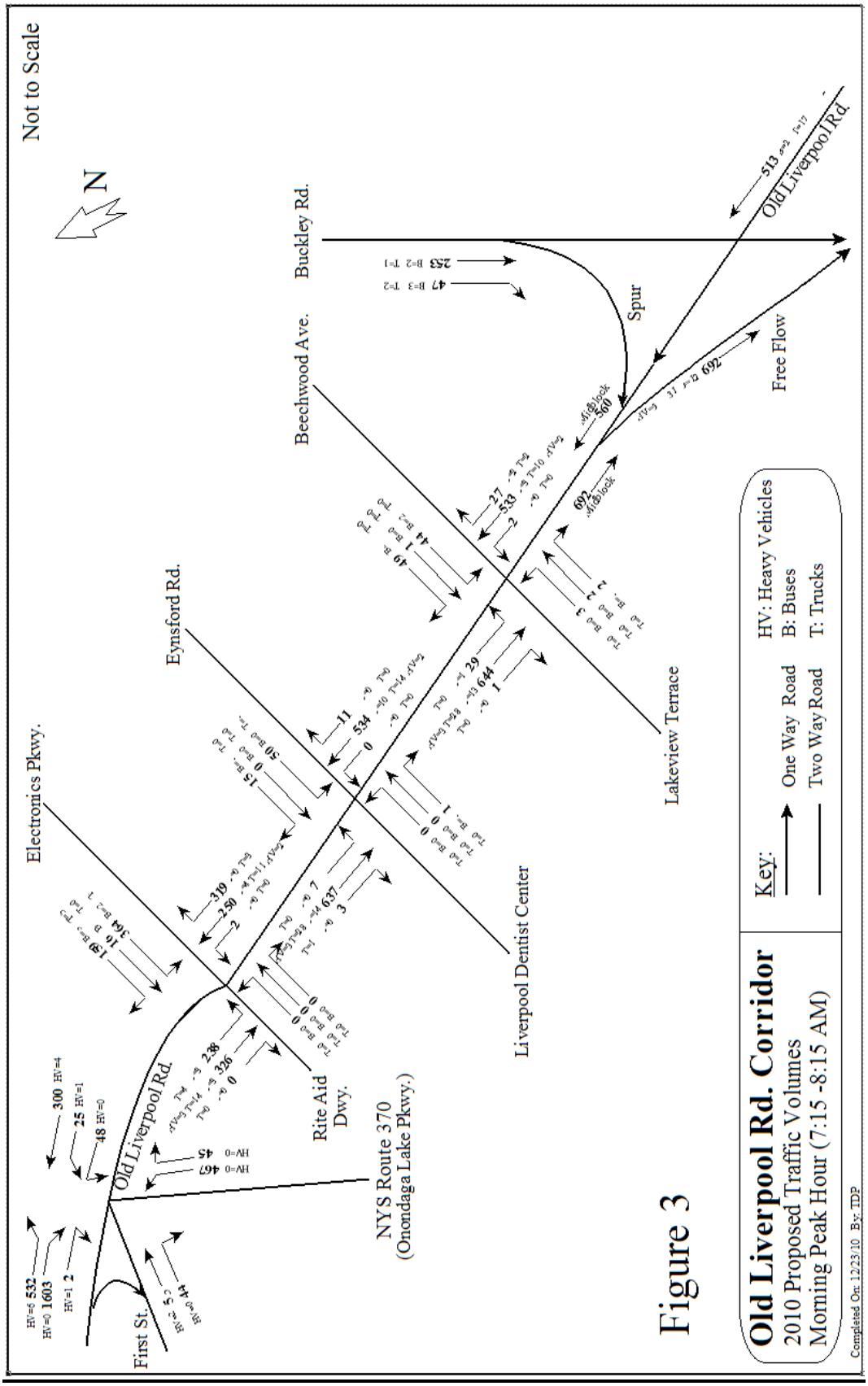
PM Peak Hour 4:30 - 5:30 PM	Vehicles From Side Road			Gap Usage by Side Road (Both Turn Movements) *						Gaps	Total Available Gaps **	%
Intersection	Rights	Lefts	Total	Gap (1 Veh.)	%	Gap (2 Veh.)	%	Gap (3 Veh.)	%	Used		Used
Town Garden Drive @ Old Liverpool Road	19	23	42	34	91.9%	3	8.1%	0	0.0%	37	71	52.1%
Greenpoint Avenue @ Old Liverpool Road	12	6	18	18	100.0%	0	0.0%	0	0.0%	18	74	24.3%

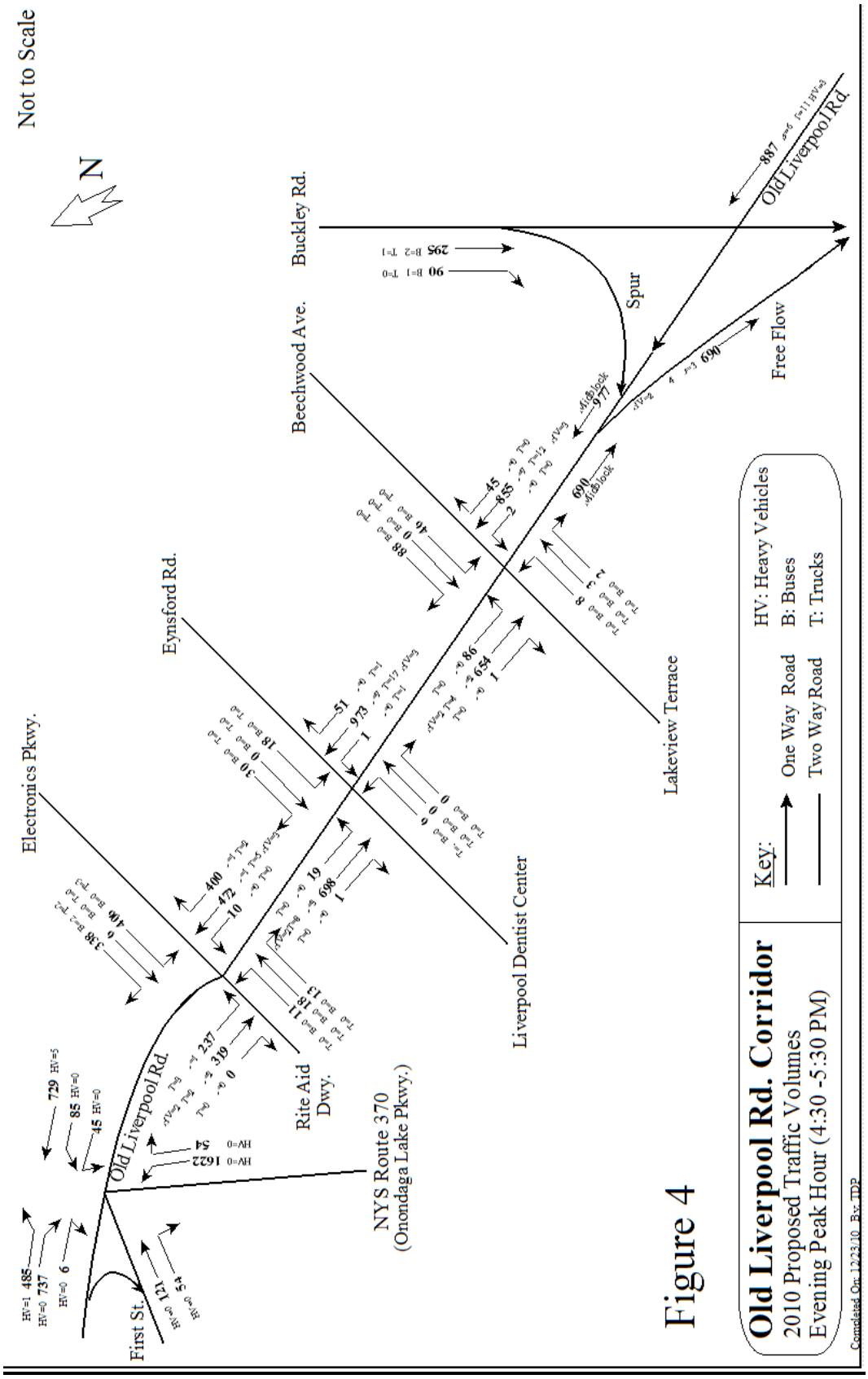
* During our data collection, no more than 3 vehicles utilized the same gap when turning onto Old Liverpool Road.

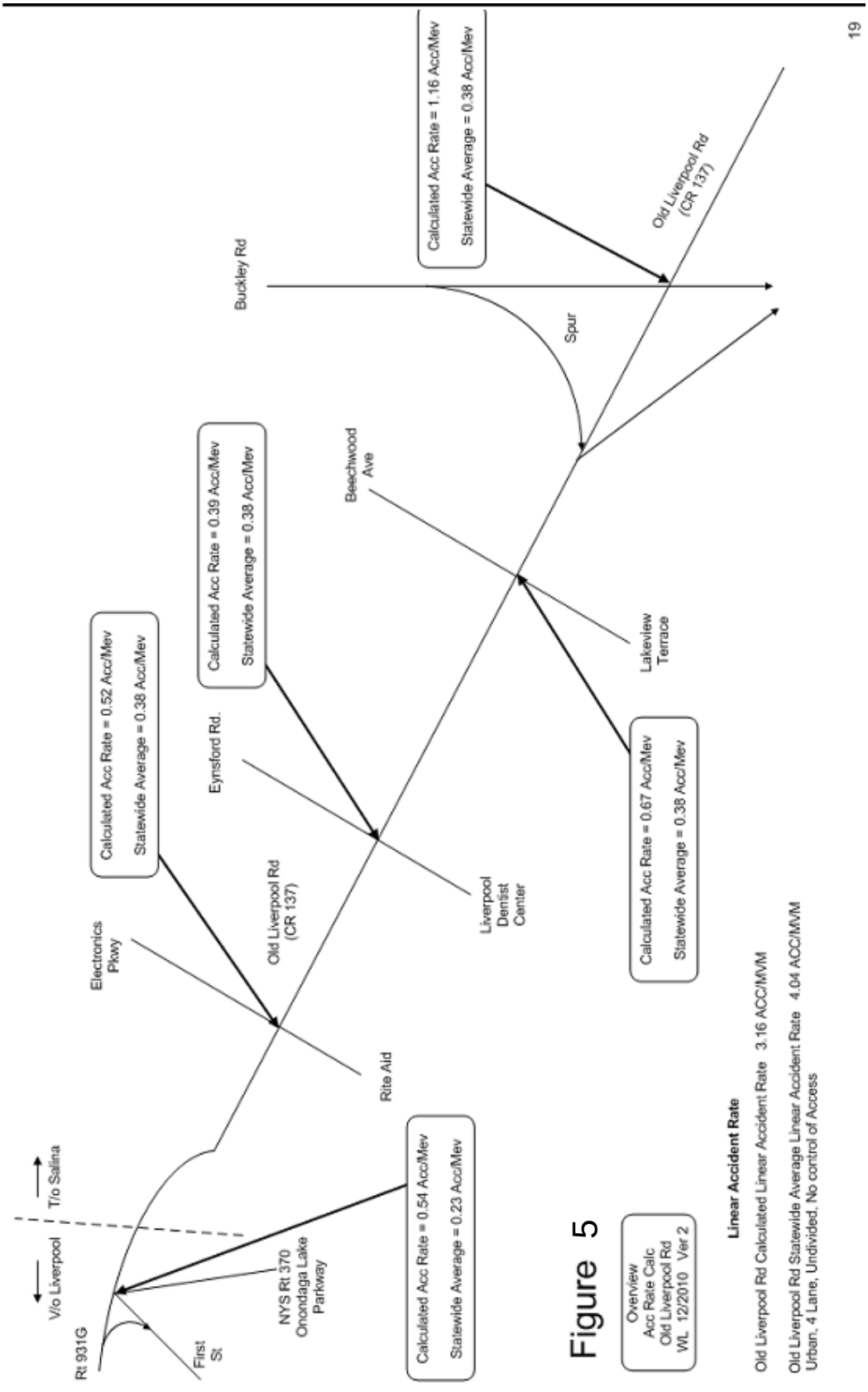
** Total Available Gaps taken from left turns exiting from Tables 10 & 11. This provides the most conservative comparison of total gaps available to actual gaps used.


Not t
N
Electronics Pkwy.
Eynsford Rd.
Beechwood Ave.
Buckley Rd.
Spur
Old Liverpool Rd.
Old Liverpool Rd.
Free Flow
Lakeview Terrace
Liverpool Dentist Center
Rite Aid Dwy.
NYS Route 370 (Onondaga Lake Pkwy.)
First St.
Figure 1
Old Liverpool Rd. Corridor
2010 Existing Traffic Volumes
Morning Peak Hour (7:15 -8:15 AM)
Completed On: 12/23/10 By: TDP
Key:
One Way Road
Two Way Road
HV: Heavy Vehicles
B: Buses
T: Trucks


Old Liverpool Rd. Corridor
2010 Existing Traffic Volumes
Evening Peak Hour (4:30 -5:30 PM)
Completed On: 12/23/10 By: TDP
Key:
One Way Road
Two Way Road
HV: Heavy Vehicles
B: Buses
T: Trucks
Old Liverpool Rd.
Electronics Pkwy.
Eynsford Rd.
Beechwood Ave.
Buckley Rd.
Lakeview Terrace
Liverpool Dentist Center
Rite Aid Dwy.
NYS Route 370
(Onondaga Lake Pkwy.)
First St.
Spur
Free Flow
Old L
Figure 2


Not to Scale
N
Old Liverpool Rd. Corridor
2010 Proposed Traffic Volumes
Morning Peak Hour (7:15 -8:15 AM)
Key:
One Way Road
Two Way Road
HV: Heavy Vehicles
B: Buses
T: Trucks
Figure 3
Old Liverpool Rd.
Electronics Pkwy.
Eynsford Rd.
Beechwood Ave.
Buckley Rd.
Spur
Free Flow
Lakeview Terrace
Liverpool Dentist Center
Rite Aid Dwy.
NYS Route 370 (Onondaga Lake Pkwy.)
First St.


Not to Scale
N
Old Liverpool Rd. Corridor
2010 Proposed Traffic Volumes
Evening Peak Hour (4:30 -5:30 PM)
Key:
One Way Road
Two Way Road
HV: Heavy Vehicles
B: Buses
T: Trucks
Figure 4
Old Liverpool Rd.
Buckley Rd.
Beechwood Ave.
Eynsford Rd.
Electronics Pkwy.
Lakeview Terrace
Liverpool Dentist Center
Rite Aid Dwy.
NYS Route 370
(Onondaga Lake Pkwy.)
First St.
Spur
Free Flow
Completed On: 12/23/10 By: TDP


19
Rt 931G
V/o Liverpool
T/o Salina
First St
NYS Rt 370 Onondaga Lake Parkway
Calculated Acc Rate = 0.54 Acc/Mev
Statewide Average = 0.23 Acc/Mev
Rite Aid
Electronics Pkwy
Calculated Acc Rate = 0.52 Acc/Mev
Statewide Average = 0.38 Acc/Mev
Old Liverpool Rd (CR 137)
Eynsford Rd.
Calculated Acc Rate = 0.39 Acc/Mev
Statewide Average = 0.38 Acc/Mev
Liverpool Dentist Center
Beechwood Ave
Calculated Acc Rate = 0.67 Acc/Mev
Statewide Average = 0.38 Acc/Mev
Lakeview Terrace
Buckley Rd
Spur
Calculated Acc Rate = 1.16 Acc/Mev
Statewide Average = 0.38 Acc/Mev
Old Liverpool Rd (CR 137)
Figure 5
Overview
Acc Rate Calc
Old Liverpool Rd
WL 12/2010 Ver 2
Linear Accident Rate
Old Liverpool Rd Calculated Linear Accident Rate 3.16 ACC/MVM
Old Liverpool Rd Statewide Average Linear Accident Rate 4.04 ACC/MVM
Urban, 4 Lane, Undivided, No control of Access

Upgrade/Replace Signs on Parkway and on Approaches

Suggestion:

Upgrade and/or replace warning and regulatory signs on Onondaga Lake Parkway and on the roadways leading to the Parkway.

Introduction:

There are numerous warning signs and regulatory signs on the Parkway and on the approaches leading to the Parkway for the 10'-9" vertical bridge clearance of the CSX Bridge. There are also numerous warning signs and regulatory signs excluding tractor trailers from the Parkway. It has been suggested to replace and or upgrade these signs to provide additional warning to motorists of the low bridge clearance and the tractor trailer exclusion.

Background:

- Onondaga Lake Parkway from the intersection of Old Liverpool Road in the Village of Liverpool to the north corporation line of the City of Syracuse has an exclusion in place for Tractor Trailers (Title 15, Chapter VIII, Subchapter A, Part 6031, Section 6031.09 (a) and 6031.31 (a) of the NYCRR). This exclusion has been in place since 1964. Vehicles over 10'-9" are also not allowed under the CSX Bridge (Vehicle & Traffic Law – Posted Height Restriction).
- There are six large low clearance warning signs located on the Parkway. The eastbound approach to the bridge has three signs that are located at 1000', ½ mile and ¾ mile in advance of the bridge, the sign at 1000' has flashing beacons. The westbound approach also has three large low clearance warning signs. These signs are located at 1000', ½ mile and 1 mile in advance of the bridge. The sign at 1000' has flashing beacons; the sign at 1 mile is overhead and has flashing beacons with strobes.
- There are 14 regulatory signs located on the Parkway relating to the 10'-9" bridge clearance and the Tractor Trailer exclusion. Each direction along the Parkway has two "Tractor Trailer Prohibited" signs, three "No Trucks Over 10'-9" signs and two "10"-9" Clearance" signs, one ground mounted adjacent to the bridge and one mounted overhead on the bridge.
- The approach from Interstate 81 northbound to the Parkway has numerous overhead warning and regulatory signs alerting motorists of the 10'-9" clearance and directing Tractor Trailers to Old Liverpool Road. There are regulatory 10'-9" Clearance signs attached to the bottom of four Route 370 West, Onondaga Lake Parkway, Exit 24A guide signs. There are supplemental "All Tractor Trailer" warning signs attached to the bottom of two Old Liverpool Road, Exit 24B guide signs. There is also a large Exit 24A, 10'-9" Low Bridge 2 Miles warning sign and a large Exit 24B All Tractor Trailer warning sign with flashing beacons. All of these signs are overhead and are located between Interstate 81 and the split to Onondaga Lake Parkway (Exit 24A) and Old Liverpool Road (Exit 24B). There is one large overhead warning sign located on I-81 mainline, this sign is well in advance of the exit and advises Tractor Trailers to Route 370 West to use Old Liverpool Road, Exit 24B.
- The approach from Park Street to the Parkway has a ground mounted warning sign directing all Trucks over 10'-9" high to use Old Liverpool Road, a supplemental "All Tractor Trailers" warning sign attached to the bottom of an overhead Old Liverpool Road

guide sign and a regulatory 10'-9" Clearance sign attached to the bottom of an overhead Route 370 West guide sign.

- The approach from Liverpool has two ground mounted warning signs two blocks prior to the entrance to the Parkway advising Tractor Trailers to turn left at the 2nd left. There are three overhead signs; a large warning sign advising all Tractor Trailers to use Old Liverpool Road, a supplemental "All Tractor Trailers" warning signs attached to the bottom of an Old Liverpool Road guide sign and a regulatory 10'-9" Clearance 1 Mile sign attached to the bottom of an overhead Route 370 East guide sign. Additionally at the entrance to the Parkway there are two ground mounted signs; a regulatory Trucks over 10'-9" High sign and an "All Tractor Trailers" warning sign.
- All of the above signs were installed and or replaced in 1996 and 1997 except the westbound overhead warning sign 1 mile in advance of the bridge which was replaced in 2005 and the vertical clearance signs on the bridge which were replaced in 2006. All of the above signs are in fair to good condition.
- The Department is currently progressing a commercial vehicle exclusion to replace the tractor trailer exclusion on the parkway. If this proposed exclusion is implemented it will be necessary to replace all of the existing tractor trailer signs with commercial vehicle signs. It would not be necessary to replace the numerous vertical clearance signs as part of this exclusion.

Recommendation:

The recommendation of the Region is to replace all of the tractor trailer signs with commercial vehicle signs as part of the proposed commercial vehicle exclusion if it is implemented. The vertical clearance regulatory and warning signs are still in fair to good condition and will be replaced as part of the future capital project in a few years. If the commercial vehicle exclusion is not implemented the tractor trailer signs will also be replaced as part of the future capital project.

Install Signs and/or Flashing Beacons on Bridge

Suggestion:

Place additional signs on the CSX Bridge and/or add flashing beacons to the existing signs on the CSX Bridge.

Introduction:

There are existing overhead 10'-9" regulatory clearance signs located on the bottom cord of the CSX truss on both sides of the bridge. It has been suggested to supplement these signs with flashing beacons and/or place additional warning signs on the bridge to provide additional warning to motorists of the low bridge clearance.

Background:

- The existing overhead regulatory clearance signs are 6' x 3' and are attached to the bottom cord of the CSX truss. These signs were replaced in 2006, are in good condition and conform to the latest requirements. One proposal is to add flashing beacons to these existing signs to increase the awareness of the signs. Another proposal is to add warning signs on the bottom cord of the CSX truss adjacent to the existing regulatory signs.
- There are three large low clearance warning signs located on the Parkway in the eastbound approach to the bridge. These signs are located at 1000', ½ mile and ¾ mile in advance of the bridge; the sign at 1000' has flashing beacons. There are also three large, low clearance warning signs located on the Parkway in the westbound approach. These signs are located at 1000', ½ mile and 1 mile in advance of the bridge. The sign at 1000' has flashing beacons; the sign at 1 mile is overhead and also has flashing beacons. Additionally there is an overhead low clearance warning sign with flashing beacons that is located on the ramp from I-81 to the Parkway; this sign is 2 miles in advance of the bridge.
- The Region has a proposal to install an over-height vehicle detection system on the Parkway. When activated this detection system would trigger a Dynamic Message Sign (DMS). Flashing beacons attached to the DMS are also being considered. The placement of the DMS would be in close proximity to the bridge. There are concerns that additional signs on the structure or flashing beacons on the structure would cause information overload and distract the motorists from reading and understanding the message on the proposed DMS.
- Placement of signs or flashing beacons on the bridge would require approval from CSX. CSX has previously expressed concerns that flashing beacons on the structure may be visible and confusing for the operators of the train.

Recommendation:

The recommendation of the Region is to not install additional warning signs or flashing beacons on the bridge at this time. There are concerns that the flashing beacons or additional signs on the bridge may cause information overload and distract the motorists from reading and understanding the message on the DMS which is proposed to be located near the bridge as part of the over-height vertical detection system.

Install Milled-In Transverse Rumble Strips

Suggestion:

Proposal to place milled in "Transverse Rumble Strips" along both the northbound and southbound lanes of Route 370 to provide advance warning to motorists of the low bridge clearance.

Introduction:

The milled in rumble strips would be used in alerting motorists of the 10'-9" height restriction underneath the CSX Bridge. The intended safety improvement would require placement of milled in rumble strips to compliment existing overhead/ground mounted signing in providing a greater awareness to alert drivers of large trucks and over height commercial vehicles of the restricted bridge clearance.

Background:

- Transverse rumble strips have been used in various applications to slow down motorists. This type of traffic control device has been used successfully in alerting motorists of reduced speeds within work zones. They have also been used in advance of changes in alignment, at the bottom of high speed freeway ramps and in advance of signalized intersections where the intent is to slow down motorists.
- Prior placements have taken into consideration the potential for unwanted noise for nearby residential neighborhoods within an approximate 500 ft radius. This device will require all motorists including passenger vehicles to pass across the rumble strips which would generate unwanted noise for the surrounding residential homes especially during late evening hours.
- An additional consideration specific to the Onondaga Lake Parkway would be scheduled park events such as "Parkway Sundays" and the annual "Corporate Challenge" race. Placement of rumble strips would impact various known users such as pedestrians, bicyclists and rollerbladers alike and could pose potential tripping hazards.
- Comments were received from Main Office questioning the effectiveness in using "transverse rumble strips" in alerting motorists of a bridge height clearance when their intended purpose is in slowing traffic in advance of a hazardous condition. The placement of these would impact every driver and the residents of the area, when the rumble strips are intended to warn of a situation that affects very few drivers.

Recommendation:

The recommendation of the Region is to not use this particular accident countermeasure along the parkway at this time. There is limited background information regarding the effectiveness in past use of milled in rumble strips to alert motorists of "low bridge clearances". Rumble strips are effective in slowing down motorists however their effectiveness in alerting motorists of a bridge height clearance is questionable. Additionally, there are also concerns associated with noise levels generated at nearby residences and potential safety risks associated with pedestrian, bicycle, and rollerblade activities during park events such as "Parkway Sundays" and the "Corporate Challenge".

Add Strobes in Existing Flashing Warning Lights

Suggestion:

Proposal to place strobes in the existing flashing beacons that supplement the warning signs along the Parkway.

Introduction:

There are four “LOW BRIDGE 10 FEET 9 INCH” warning signs in advance of the bridge that have existing flashing beacons. Only one flashing beacon presently has strobes, the proposal is to install strobes in the remaining three flashing beacons to further enhance driver awareness of the low bridge clearance.

Background:

- Strobes have been used in the past for flashing beacons and three color signals at numerous locations throughout New York State. These strobes have mainly been used in high speed, high accident areas to draw attention to the signal device.
- The new 2009 National MUTCD, Section 4D.06, does not allow the use of strobes within or adjacent to any signal indication. Based on this, the installation of new strobes will not be allowed. There is no compliance date with the removal of the existing strobes and at this point in time FHWA is not requiring their removal.

Recommendation:

- The recommendation of the Region is to not install additional strobes in the remaining three flashing beacons. The 2009 MUTCD does not allow the installation of new strobes. The strobes in the existing flashing beacon will be retained at this time.

Year Round Speed Reduction

Suggestion:

Change the seasonal 45 MPH speed limit on Onondaga Lake Parkway to a permanent, year round speed limit.

Introduction:

The speed limit on Onondaga Lake Parkway consists of a 45 MPH seasonal speed limit in effect November 1 through April 1, and the State speed limit of 55 MPH for the remainder of the year. Several requests have been received to make the 45 MPH speed limit permanent.

Background:

- The section of Parkway affected involves a 1.5 mile section of Route 370 between Route I-81 and the Village of Liverpool as well as the low clearance CSX railroad bridge. This section of the Parkway lies along the eastern shore of Onondaga Lake and is directly impacted by adverse weather conditions (wind, freezing rain and blowing snow) off the lake during the winter months. The 45 MPH seasonal speed limit has been in effect since 2000, and was implemented to address a pattern of crossover head-on accidents and run off road accidents occurring during snow covered, and slippery pavement conditions.

- To evaluate the request, one radar speed check was taken before the seasonal speed limit was in effect (55 MPH) and three were taken after the seasonal speed limit was in effect (45 MPH). The radar checks were all taken in the vicinity of the CSX railroad bridge. The radar checks indicate a lack of compliance for the posted speed limits, as shown in the table below.

Speed Analysis

There was a definite lack of compliance with the speed limit regardless of what limit was in effect. The following is a comparison of the two scenarios:

	55 MPH Speed Limit	45 MPH Speed Limit
85th Percentile Speed	**61-62 MPH**	**55-56 MPH**
67th Percentile Speed	**58 MPH**	**52-53 MPH**
50th Percentile Speed	**56 MPH**	**50-51 MPH**
Range	**42-79 MPH**	**39-66 MPH**
10-mile Pace	**51-60 MPH**	**46-55 MPH**
Average Speed	**56-57 MPH**	**51 MPH**
% in Violation	**47%-68%**	**86%-96%**

- Radar speed checks are conducted to determine prevailing traffic speeds during free flow, dry road conditions. (One radar check during the seasonal speed limit was taken during a steady rain with similar results). When establishing a speed limit, the appropriate numerical value must be realistic in terms of prevailing (existing) traffic speeds. Practice has shown that an unrealistically low speed limit is often ignored by drivers, and may lead to an increase in rear end type crashes due to the speed differential between those obeying the speed limit and those not. The consensus of traffic engineers throughout the country indicates that the appropriate value for a speed limit will almost always be that indicated by the 85th percentile speed (to the nearest 5 MPH). This practice has been adopted by NYSDOT. At the 85th percentile speed, 85% of the sample vehicles are traveling at or slower than this speed and 15% are exceeding it. The 10-mile Pace is the 10 MPH range of speeds including the largest number of sample vehicles.

- The above table indicates that a large percentage of vehicles are in violation of both posted speed limits, but the percentage is much higher during the seasonal speed limit. This indicates a need for increased enforcement efforts.

- A review of the accident history shows how accidents have been affected (November 1 to April 1) since the 45 MPH speed limit was implemented in 2000, compared to a six year period in the 1990's.

  Total Accidents: Down 41% Slippery Accidents: Down 53% Head-On Accidents: Down 63%

- A case can be made that the seasonal speed limit of 45 MPH is not warranted based on the 85% percentile speeds. However, during the decade the speed limit has been in place, it has had the desired effect of reducing slippery accidents and head-on accidents. The seasonal speed limit may also serve as a reminder to slow down during adverse weather conditions. Given the proximity to the lake, the highway can be impacted by winds and slick roads even on a sunny, winter day.

Recommendation:

- Implementing a year round 45 MPH speed limit without stringent enforcement is very unlikely to affect speeds significantly and will breed further disrespect for the posted speed limit. The recommendation is to retain the current speed limits (State speed limit 55 MPH with a seasonal 45 MPH limit).

- There is a need to enhance enforcement of the speed limit along the parkway when the seasonal speed limit is active since there is a very low compliance rate (4 to 14% obedience). Additional enforcement during the other months is also justified as the obedience level is 32% to 53%. The focus of the enforcement effort should be to reduce operating speeds to a level commensurate with the posted speed limit. The Onondaga County Sheriff's Department has agreed to provide this increased enforcement.

CB Radio Transmitter with Low Bridge Message

Suggestion:

Install a Citizen Band (CB) radio transmitter on the Parkway to transmit a pre-recorded low bridge warning message on CB Channel 19.

Introduction:

In an effort to provide additional advance low bridge clearance warning to motorists, the Region proposes to broadcast a pre-recorded warning message on CB channel 19. This warning message is intended to primarily capture the attention of truckers who are listening to a CB radio in the vicinity of the Parkway; however, any motorist with a CB radio in the area will hear the warning message.

Background:

The Department's Region 8 Hudson Valley Transportation Management Center (HVTMC), has worked with Mark MacSkimming, of TRAFCON, to carry out a demonstration project of a system called the "Workzone Wizard" (the Wizard). The Wizard is a device that contains a CB radio, a recording device, and a timing mechanism that allows the user to transmit a pre-recorded message at preset repeat intervals. The demonstration project involved setting up the Wizard system in the vicinity of a low bridge that typically experienced 2 to 4 hits per month. While they did not get any direct feedback on the effectiveness of this unit from the truckers, they do believe that the Wizard was effective because the low bridge was not hit at all during the demonstration project, nor was it hit for several weeks after the demonstration project.

The Wizard would be mounted in the cabinet of the CCTV camera that was recently installed on the Parkway. The Region's plan is to broadcast a pre-recorded message on CB Channel 19, warning of the low bridge on the Parkway. The message would be approximately 10 seconds long, and would try to rebroadcast every 30 seconds. If after 30 seconds the channel is busy, the Wizard will wait for a break in the conversation before rebroadcasting the message. The 30 second rebroadcast interval may be changed to 60 or 90 seconds if the range of the Wizard is far enough that the longer rebroadcast interval is deemed to be more appropriate.

It is the Region's intent to listen to the message in our Regional Transportation Management Center. The plan is to listen to the message at least once during every 8 hour shift to ensure that the Wizard is transmitting properly. If the radio or recorder malfunctions, someone would be dispatched to the Wizard to turn the power off. Depending on the time of day and the availability of staff, it could take a couple of hours to turn off the Wizard once the Region is aware of a malfunction.

Additional equipment would need to be purchased and installed in order to monitor the Wizard broadcast from the TMC and for maintenance personnel to listen to and trouble shoot the Wizard in the field. The exact equipment that will be required to accomplish this requirement will not be known until the Wizard is installed in the field and we can determine the range that the Wizard will be able to broadcast. The range of the

broadcast will be dependant on numerous factors including, but not limited to, ground plane, length of the antenna, atmospheric conditions, and line of sight.

After contacting the FCC and obtaining interpretation of the CB rules from Bob Terry, Radio Engineer for the NYSDOT, it has been determined that using the Wizard CB system remotely without someone present at the CB unit would be in violation of the FCC CB rules.

Recommendation:

The recommendation of the Region is to not install a CB radio transmitter unit on the Parkway to continuously transmit a pre-recorded low bridge warning message. It has been determined that this type of implementation of the device does not meet FCC CB rules.

Change Highway Designation from Parkway to Street or Road

Suggestion:

The NYSDOT has received a suggestion to change the name of the Parkway to Street or Road.

Introduction:

The name of this roadway is Onondaga Lake Parkway. The proposal would be to change the name of the roadway to Onondaga Lake Road or Onondaga Lake Street to deter large vehicles from using the roadway.

Background:

- There are several Parkways in other parts of New York State that prohibit commercial vehicles. Although it is not common in central New York, many people in downstate New York associate the name Parkway for a roadway that only allows passenger vehicles. Changing the name of the roadway from Parkway to Road or Street does not appear to be an effective solution of deterring large vehicles and may possibly increase the number of large vehicles on Onondaga Lake Parkway.
- There are four overhead signs that have the name of Onondaga Lake Parkway on them. If the name of the roadway was changed these signs would need to be replaced.

Recommendation:

- The recommendation of the Region is to not change the name of the Parkway to Street or Road. Changing the name of the roadway from Parkway to Road or Street does not appear to be an effective solution of deterring large vehicles from using this roadway.

Install Flexible Reflectorized Delineators

Suggestion:

Install 48" high Flexible Reflectorized Delineators along the centerline of the 4'-0" flush striped median of Onondaga Lake Parkway.

Introduction:

Centerline Flexible Delineators are proposed along the centerline of the 4'-0" flush striped median of the Onondaga Lake Parkway to provide additional guidance to motorists in delineating the centerline of the roadway during wet-nighttime and snow covered conditions.

Background:

- Centerline Flexible Delineators have been used along narrow striped medians in alerting motorists when entering areas adjacent to lanes of opposing traffic. Vertical delineators have been useful in providing additional guidance to motorists when placed between ramps of opposing direction especially on ramps with sharp horizontal curvature.
- Placement of delineators would hamper removal of snow from the median area. The Resident Engineer has expressed concerns that the snow plow trucks would not be able to clear the entire median of snow with the placement of delineators. It is anticipated that the snow plow would only be able to plow within approximately 1.5 feet of the delineators. This could leave approximately 3 feet of snow in the median and would create a condition where snow could melt and refreeze across the travel lanes. This area is also very susceptible to drifting snow when strong winds blow across the lake. This windrow of snow in the median would promote the drifting of snow in the WB lanes.
- Centerline Flexible Delineators are susceptible to damage by errant vehicles and snowplowing operations. It is anticipated that these delineators would need to be repaired on a regular basis. Most of the damage to the delineators is likely to occur in the winter months, during these months it would be difficult for Maintenance personal to repair the delineators as almost all of their resources are dedicated to snow and ice removal. Repair of the delineators would require left lane closures in each direction.

Recommendation:

- The recommendation of the Region is to not install the Centerline Flexible Delineators at this time. Placement of delineators would hamper removal of snow from the median area which would result in the unsafe condition of snowmelt and refreeze, and drifting snow across the travel lanes.

Install Retro-reflective Coated Panels on Bridge

Suggestion:

It is proposed to replace some of the orange panels that are located on the bridge with new panels that have a retro-reflective coating.

Introduction:

Each side of the bridge has orange panels across the fascia of the bridge. It is proposed to replace four of the six feet panels with new panels that have a retro-reflective coating to improve the visibility of the bridge at nighttime.

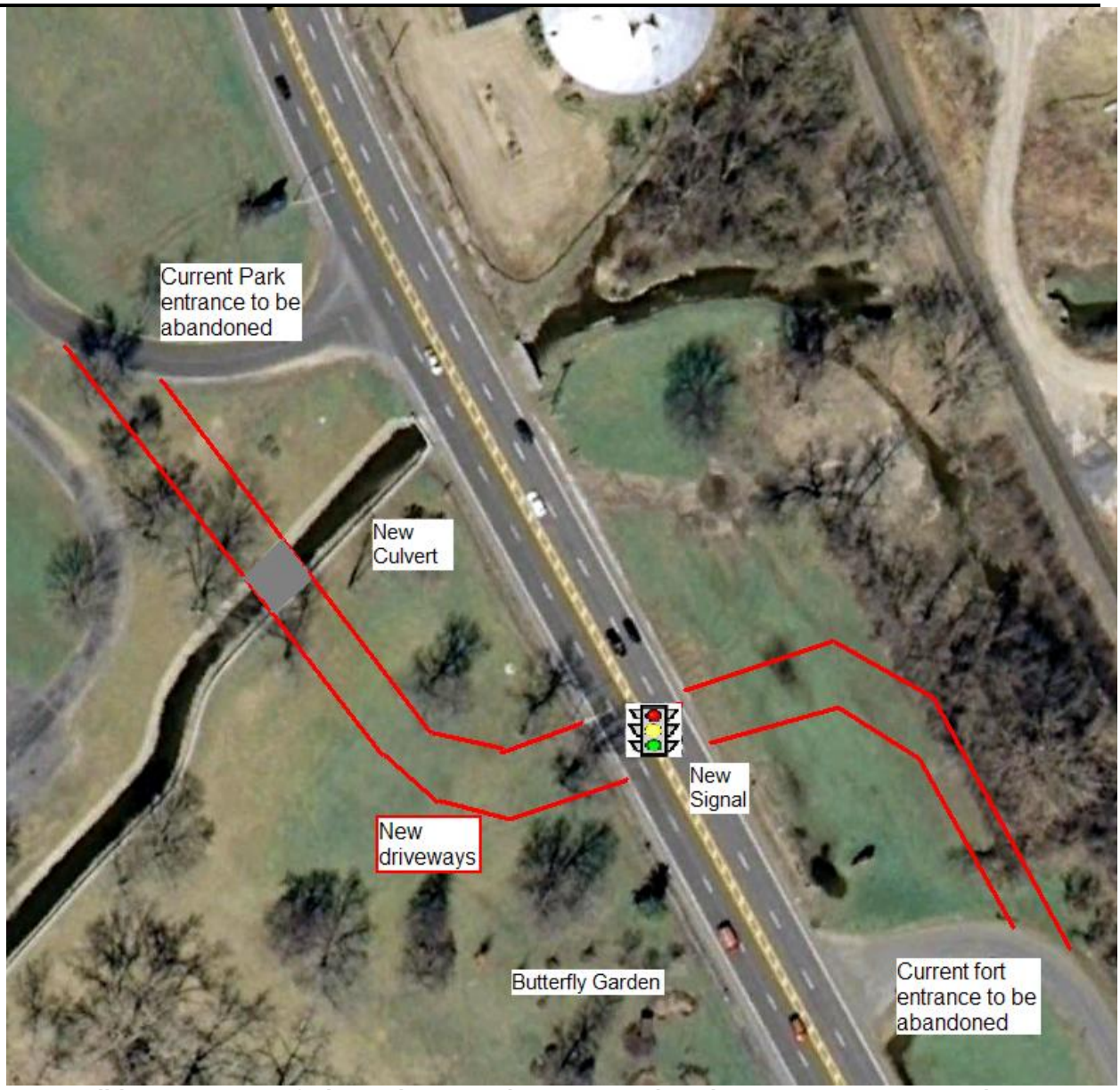
Background:

- The existing orange panels are two feet high and extend across the entire fascia of the bridge; they are located on each side of the bridge and were originally installed in 1995 and were replaced in 2006. They are sign panel material with a reflective surface and were installed to improve the visibility of the low clearance bridge.
- A representative from O.W. Hubbell & Sons contacted the department to explain about a new highly retro-reflective coating that they have been using for various applications. This coating is white in color and is highly reflective. The representative's proposal was to replace the orange panels with panels coated with this material. It is anticipated that this coating would improve the visibility of the bridge at nighttime. The representative offered to coat four six feet panels for a trial use on the bridge.
- As a trial for this product a total of four six feet long panels would be coated and two would be placed on each side of the bridge. Each six feet panel would be centered on the two approach travel lanes. As motorists approach the bridge the left half of the fascia will have the orange panels and the right half will have alternating orange and highly retro-reflective white panels. This pattern was chosen for the trial to maintain the high visibility that the orange panels provide in the daytime while potentially improving the nighttime visibility of the bridge.
- O.W. Hubbell & Sons informed the Department in February 2011 that due to unanticipated circumstances they would not be able to provide the coated panels.

Recommendation:

- The Region will not be able to pursue this potential safety enhancement due to the unavailability of the materials. If the materials become available in the future, this option will be considered at that time.

Attachment 6: Sketches of Alternatives



Possible component of Alternative #5 and #6: New Park and Fort Entrance Intersection

Attachment 7: Design Criteria

Critical Design Elements for Route 370			
PIN:	328717	NHS (Y/N):	Non-NHS
Route No. & Name:	Route 370 – Onondaga Lake Parkway	Functional Classification:	Urban Principal Arterial
Project Type:	Safety	Design Classification:	Urban Arterial
% Trucks:	3%	Terrain:	Rolling
Design AADT:	27,100	Truck Access/Qualifying Hwy.	Neither - No trucks

	Element	Standard	Existing Condition	Proposed Condition
1	Design Speed	60 mph	55 mph posted (45 mph winter)	60 mph(1)
2	Lane Width	12 ft HDM Section 2.7.2.2 Exhibit 2-4	11 ft	12 ft(2)
3	Shoulder Width	8 ft HDM Section 2.7.2.2 Exhibit 2-3	6 ft	TBD
4	Bridge Roadway Width	N/A – not a highway bridge	N/A	N/A
5	Maximum Grade	6% Maximum HDM Section 2.7.2.2 Exhibit 2-4	2% Max.	2% Max.
6	Horizontal Curvature	1,500 ft (@ e = 4.0%) HDM Section 2.7.2.2 Exhibit 2-4	>1,500 ft	>1,500 ft
7	Superelevation Rate	4% Maximum HDM Section 2.7.2.2 G	TBD	4% Max.
8	Stopping Sight Distance	570 ft Minimum (Crest) HDM Section 2.7.2.2 Exhibit 2-4	570 ft Min.	570 ft Min.
9	Horizontal Clearance	1.5 ft minimum HDM Section 2.7.2.2 l	Approx. 2 ft at bridge >3 ft elsewhere	TBD
10	Vertical Clearance	14 ft Minimum 14.6 ft Desirable BM Section 2.4	10 ft 9 in posted	TBD
11	Pavement Cross Slope	1.5% Min. to 2% Max. HDM Section 2.7.2.2 K	TBD	1.5-2%
12	Rollover	4% between lanes 8% at EOT HDM Section 2.7.2.2 L	TBD	<4% <8%
13	Structural Capacity	N/A – bridge is owned by railroad	N/A	N/A
14	Level of Service	N/A Not an interstate highway	N/A	N/A
15	Control of Access	None Not an interstate highway	None (for park access)	TBD
16	Pedestrian Accommodation	Complies with HDM Chapter 18 and ADAAG	6 ft shoulder	TBD
17	Median Width	0 ft HDM Section 2.6.17	4 ft striped	TBD

(1) The Regional Traffic Engineer has concurred that the use of a Design Speed of 60 mph is consistent with the anticipated off-peak 85th percentile speed of 62 mph when the highway is posted at 55 mph and 55 mph when a 45 mph posting is in effect.
(2) If trucks and other commercial vehicles are excluded from the parkway or if speeds are reduced to below 50 mph, the existing 11 ft lanes may be retained.

Attachment 8: Environmental Scoping Checklist

Environmental Scoping Checklist				
PIN: 3287.17			DESIGNER: Consultant	
DESCRIPTION: Route 370 (Onondaga Lake Parkway) Safety Improvements			ENVIRON. CONTACT: Patricia Coulthart	
COUNTY: Onondaga			TYPE FUNDING:	
			DATE: 01/04/11	
			REVISION DATE:	
ENVIRONMENTAL CLASSIFICATION	**NEPA:**	CLASS II CATEGORICAL WITH DOCUMENTATION		
	SEQRA:	NON-TYPE II (EIS)	**SUBJECT TO SEQR PROCESSING:**	TBD

ENVIRONMENTAL ISSUE		INVOLVEMENT		FURTHER REVIEW REQUIRED	COMMENTS
		YES	NO		
1.	Parkland - State, County & Local Parks & Trails	☒	☐	☐	
2.	Parkland - Nationwide 4(f), Section 4(f), Section 6(f), Section 1010	☒	☐	☐	
3.	Historic & Archaeological Resources - General and/or Section 4(f)	☒	☐	☐	
4.	Natural Landmarks	☐	☒	☐	
5.	Visual Resources	☐	☒	☐	
6.	Coast Guard Bridge Permit	☐	☒	☐	
7.	Floodplains	☒	☐	☐	
8.	Wetlands - Federal	☐	☐	☒	
9.	Executive Order 11990	☐	☐	☒	
10.	Wetlands - State - Article 24 (Freshwater) or Article 25 (Tidal) Permit	☐	☐	☒	
11.	Corps of Engineers - Section 10 or 404, Nationwide or Individual Permits	☐	☐	☒	
12.	Water Quality Certification - Section 401	☐	☐	☒	
13.	Water Quality Analysis	☐	☐	☒	
14.	Sole Source Aquifer	☐	☒	☐	
15.	SPDES Stormwater Permit	☐	☐	☒	
16.	Wild, Scenic & Recreational Rivers - Federal or State	☐	☒	☐	
17.	Coastal Zone Management	☐	☒	☐	
18.	Critical Environmental Areas	☐	☒	☐	
19.	Endangered or Threatened Species	☐	☐	☒	
20.	Farmland or Agricultural District	☐	☒	☐	

21.	Scenic Roads	☐	☒	☐	
22.	Air Quality Analysis	☐	☐	☒	
23.	Noise Analysis	☐	☐	☒	
24.	Energy Analysis	☐	☐	☒	
25.	Asbestos	☐	☐	☒	
26.	Hazardous Waste	☐	☐	☒	
27.	Pedestrian Facilities / ADA Issues	☐	☐	☒	
28.	Bicycle facilities	☒	☐	☐	
29.	GreenLITES	☐	☐	☒	
30.	MS4 location? TDML- Outfall location change?	☒	☐	☐	

All supporting documentation can be located in the Environmental Appendix.

NOTES:

Attachment 9: Pedestrian Checklist

PEDESTRIAN GENERATOR CHECKLIST

PIN: 328717121 Project Name: ONONDAGA LAKE PARKWAY, NYS RT. 370

SEPT. 10, 2010 Location: LIVERPOOL, ONONDAGA Co.

Note: The term "generator" in this document refers to both pedestrian generators (where pedestrians originate) and destinations (where pedestrians travel to).
A check of" yes" indicates a potential need to accommodate pedestrians and coordination with the Regional Bicycle and Pedestrian Coordinator is necessary during project scoping. Answers to the following questions should be checked with the local municipality to ensure accuracy.

1.	Is there an existing or planned sidewalk, trail, or pedestrian-crossing facility?	YES☑ NO☐
2.	Are there bus stops, transit stations or depots/terminals located in or within 800 m of the project area?	YES☐ NO☑
3.	Is there more than occasional pedestrian activity? Evidence of pedestrian activity may include a worn path.	YES☑ NO☐
4.	Are there existing or approved plans for generators of pedestrian activity in or within 800m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as schools, parks, playgrounds, places of employment, places of worship, post offices, municipal buildings, restaurants, shopping centers, or other commercial areas, or shared-use paths?	YES☑ NO☐
5.	Are there existing or approved plans for seasonal generators of pedestrian activity in or within 800 m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as ski resorts, state parks, camps, amusement parks?	YES☑ NO☐
6.	Is the project located in a residential area within 800 m of existing or planned pedestrian generators such as those listed in 4 above?	YES☑ NO☐
7.	From record plans, were pedestrian facilities removed during a previous highway reconstruction project?	YES☐ NO☑
8.	Did a study of secondary impacts indicate that the project promotes or is likely to promote commercial and/or residential development within the intended life cycle of the project?	YES☐ NO☑
9.	Does the community's comprehensive plan call for development of pedestrian facilities in the area?	YES☑ NO☐
10.	Based on the ability of students to walk and bicycle to school, would the project benefit from engineering measures under the Safe-Routes-To-School program? Eligible infrastructure-related improvements must be within a 3.2 km radius of the project. NO SCHOOL NEARBY	YES☐ NO☑

Note: This checklist should be revisited due to a project delay or if site conditions or local planning changes during the project development process.

Comments: FEW PEDESTRIANS WALK DURING LUNCH BREAK ALONG PARKWAY. SAW 1 BICYCLIST.

Regional Bicycle and Pedestrian Coordinator: Jeffrey Stanley

Project Designer:

Attachment 10: Environmental Concerns regarding alternative 10

The following information addresses the major environmental impacts that may be encountered with Alternative #10, lowering Route 370 under the CSX Bridge. This provides a general overview of the impacts. Further evaluation would be required if this alternative was selected and more details of the scope of work were defined.

Threatened and Endangered Species

U.S Fish and Wildlife Service reports that there are known federally listed protected species in Onondaga County. There are no known occurrences within our project action area. However, if trees need to be removed, we would have to consider potential impacts to suitable habit for several listed species. Tree removal restriction dates would then have to be implemented.

The New York State Natural Heritage Database shows a known occurrence of a New York State endangered plant species within the project action area. Any work along the shoreline would have to be screened for potential impacts to this species.

The Natural Heritage Database shows a potential occurrence of a New York State Threatened plant species. This plant was historically found growing along the Onondaga Lake shore in the salt marshes. However, it is noted in the database that the researcher failed to find this plant in the degraded salt marsh. It should also be noted that the project action area is located in the vicinity of a historical inland salt pond; yet, it is also noted that the habitat is severely degraded and that no salt marsh is left.

Wetlands and Hydrology

At the eastern end of Route 370 at the Interstate 81 interchange there are several large NYSDEC wetlands. The wetlands are listed as SYW-11 and SYW-12. In this same area, there is a federally listed wetland and several shallow ponds.

The entire Onondaga Lake Parkway is shown to be within the 100 year flood zone. The New York State Department of Transportation Region 3 Survey Unit provided the existing road elevation near the low point under the CSX Bridge. This elevation is approximately 366.9 ft. [NAVD88]. According to a Honeywell report titled *Draft Onondaga Lake Capping, Dredging and Habitat Intermediate Design*, dated January 2011, 95% of all recorded water surface elevations for Onondaga Lake are at or below 365 ft. [NAVD88]. The highest recorded lake level is 369.77 ft. [NAVD88]. NYSDOT Survey Unit will be providing a permanent benchmark near the bridge for future use.

Consideration would need to be taken during design for occurrences of high-water levels, wetland impacts and suitable areas for SPDES treatment.

Contaminated Materials

An initial Hazardous Waste/Contaminated Materials Site Screening has been conducted in accordance with NYSDOT Environmental Procedures Manual, Chapter 5, in order to document the likely presence or absence of hazardous/contaminated environmental conditions. The Hazardous Waste/Contaminated Materials Site Screening included a review of readily available databases including: NYSDEC regulatory data files, aerial photographs, Sanborn Fire Insurance Maps (adjacent site coverage only); NYSDOT Record Plans and project files, and a site walkover on April 26, 2011.

The findings of the screening indicate the likely presence of Construction and Demolition (C&D) Debris, non-hazardous solid wastes, and/or non-hazardous commercial-industrial wastes[1] within the project area. It is well documented that the former Oswego Canal is located beneath the highway at the project area. It is also well known that the Oswego Canal was abandoned in 1918 and filled in the 1930's to allow for the construction of the Onondaga Lake Parkway. Although the screening wasn't able to verify the specific nature of the material used to fill the canal, during this time period it was common practice to use industrial process waste products, refuse, ash and lake sediments as fill. Given the industrial history of the area[2] and the long-standing practice of landfilling waste products, special handling of soil and groundwater would be anticipated for this alternative.

Soil

It is also anticipated that Construction and Demolition wastes, non-hazardous solid wastes, and/or non-hazardous commercial-industrial wastes[1] may be encountered. It is not anticipated that soil encountered would be classified as Hazardous Waste. The contract would require inclusion of work items associated with the handling, characterizing and proper disposal of materials encountered.

These work items include consideration for health and safety associated with handling of contaminated and non-hazardous solid materials. They require the contractor to produce, for DOT approval, a Contaminated Material Handling Plan (CMHP), Field Organic Vapor Monitoring Plan (FOVMP), and a Disposal Plan. In addition, the NYSDOT would request that the contractor obtain assessment and recommendations, conducted by a Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP), of workers potential exposure to contaminated materials. Given the unusual nature of this alternative and the inability to sample the material within the former canal prior to construction, the cost for these items would likely be somewhat (~25%) higher than average.

Water

Special handling of water would be anticipated for this alternative. Given the brackish nature of the groundwater, the possibility of other contaminants and proximity to Onondaga Lake, the water generated during construction would likely need to be containerized, characterized, hauled and treated or treated on-site and discharged on-site under a DEC SPDES permit.

Due to site constraints (ROW, useable land surface) the most feasible option would be containerization. Under this scenario, the contract would require inclusion of work items to address the handling and disposal of industrial contaminated water**.** The following table

estimates some of the associated cost and is based on a cost of 10 cents per gallon. The cost for treating various flow rates is included in the table. Determining the actual flow requiring handling during construction would require additional groundwater testing and modeling. It should be noted that the cost for disposal is variable, is tied to volume (more water costs less per gallon), and fuel costs. Neither of these is included in the cost estimate below. In addition, the contractor cost to get the water into the container would be separate. This cost represents just waste storage, transport and disposal and is also not a quote specific to this project alternative.

Estimated Cost for Containerization, Transport and Disposal of Excavation Water Generated During Construction

Flow Rate (gallons/minute)	Daily Gallons	Daily Cost (10 cents/gallon)	Monthly Cost (30 days)
36	51,840	$5,184	$155,520
100	144,000	$14,400	$432,000
1000	1,440,000	$144,000	$4,320,000

Based on known groundwater conditions, long term pumping and handling of 36 gallons/minute of industrial contaminated water would be required. Containerization, transport and disposal or treatment on-site and discharge on-site under a DEC SPDES permit would be required. The estimated cost for containerization, transport, and disposal is 10 cents a gallon which results in a continual operating cost of $155,520/month. In addition, the water has not been sampled and characterized, nor has a groundwater pump test or groundwater modeling been performed; therefore, the estimates are preliminary.

1) (CP-51, 4.4.20.8.12.1 Waste Management - General Rules https://www.nysdot.gov/divisions/engineering/environmental-analysis/manuals-and-guidance/epm/repository/4_4_20Haz_Substances.pdf)
2) (http://onondagalake.org/docs/RI-fromCD/Figures/Chap1/RI%20Figure%201-5.pdf)

Cultural Resources

This alternative would impact parklands and cultural and historic resources. Section 106, Section 4(f) and potentially Section 6(f) involvement would be required. There are also a number of cultural and historical assets within this corridor including lands with significance to concerned Native American Nations. The extent of potential impacts for this alternative would need to be explored further if this alternative is selected.